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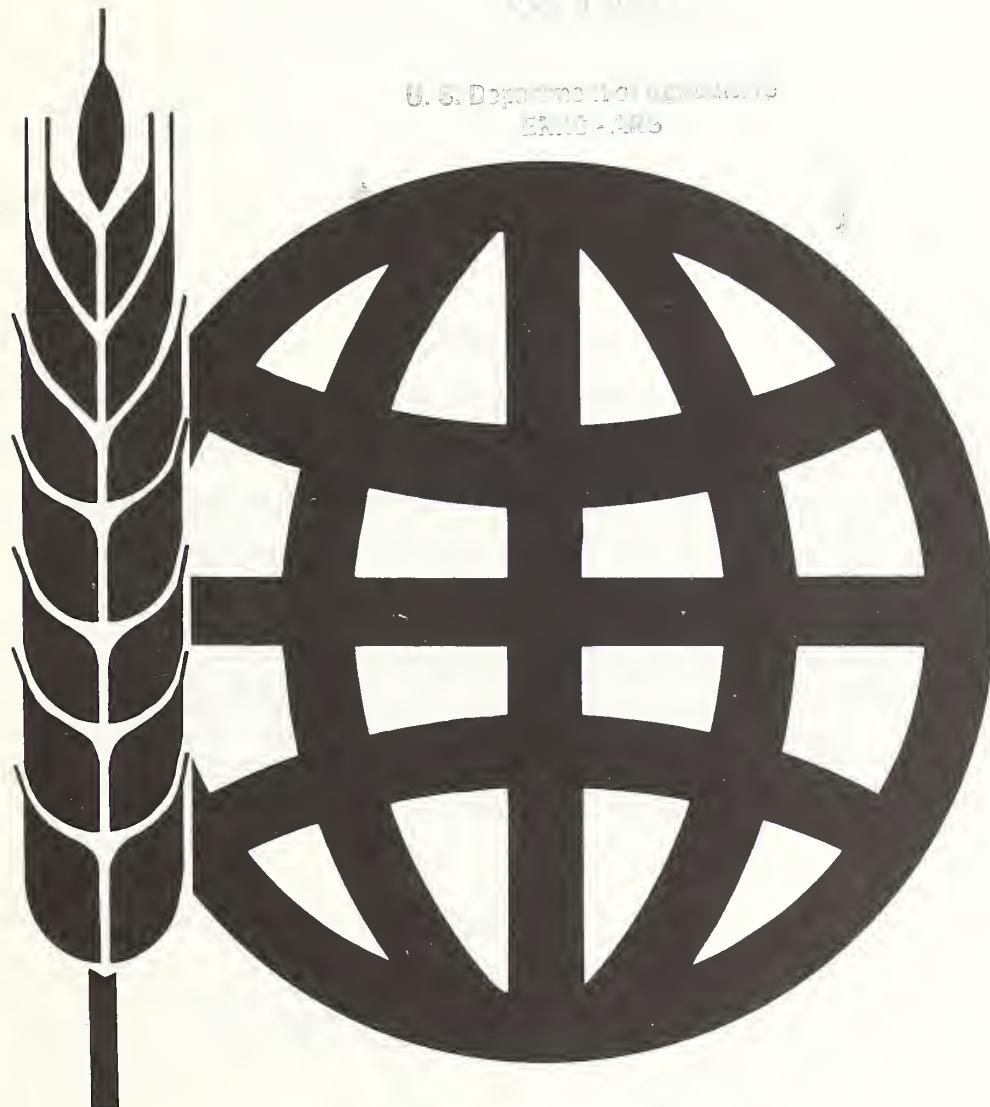


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# The Agricultural Situation in the Soviet Union

Review of 1974 and Outlook for 1975

U. S. Department of Agriculture  
ERS - ARS



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**ABSTRACT:** In 1974, Soviet agricultural output failed to equal the 1973 record. Crop output was down about a tenth from the 1973 record, primarily because of less favorable weather, but achievements in livestock raising helped to offset much of the decreases in crops. Attainment of 1975 Soviet farm output goals would require much better than normal weather, but some increases over 1974 are likely for both crops and livestock.

**KEYWORDS:** Soviet Union, agricultural production, crops, livestock, agricultural inputs, agricultural trade, plans, prospects.

## FOREWORD

This report reviews and analyzes major developments in the Soviet food-and-fiber system during 1974 and provides information on the outlook for 1975. Emphasis is given to agricultural developments of major concern to the United States, especially developments affecting the outlook for foreign trade of farm commodities.

The report updates and supplements statistics and other information published in ERS-Foreign 358, *The Agricultural Situation in the Soviet Union: Review of 1973 and Outlook for 1974*. It is one of seven regional publications on the world agricultural situation. Other reports are being published on Western Europe, Eastern Europe, the Western Hemisphere, the Far East and Oceania, Africa and West Asia, and the People's Republic of China.

Fletcher Pope, Jr., directed and coordinated preparation of this report. Sections of the report were written by Angel O. Byrne, Fletcher Pope, Jr., and David M. Schoonover. Carolyn E. Miller provided statistical assistance. Crop production data for 1974 and selected other statistics were made available by the USSR Central Statistical Administration under the US-USSR Agreement on Agricultural Cooperation.

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CONVERSION EQUIVALENTS

Pounds per bushel

Wheat and potatoes.....		60
Rye and corn.....		56
Barley.....		48
Oats.....		32

One kilogram	equals	2.2046 pounds
One centner or metric quintal	"	220.46 pounds
One metric ton	"	10 centners or 2204.6 pounds
One hectare	"	2.471 acres
One acre	"	0.4 hectare
One kilometer	"	0.6 mile

Metric tons to bushels

<u>One metric ton</u>	<u>Bushels</u>
Wheat and potatoes.....	36.743
Rye and corn.....	39.368
Barley.....	45.929
Oats.....	68.894

Bushels to metric tons

<u>One bushel</u>	<u>Metric tons</u>
Wheat and potatoes.....	.02722
Rye and corn.....	.02540
Barley.....	.02177
Oats.....	.01452

To convert centners per hectare to bushels per acre,  
multiply by:

Wheat and potatoes.....	1.487
Rye and corn.....	1.593
Barley.....	1.8587
Oats.....	2.788

To convert bushels per acre to centners (metric quintals)  
per hectare, multiply by:

Wheat and potatoes.....	0.6725
Rye and corn.....	0.6277
Barley.....	0.5380
Oats.....	0.3587

One metric ton of seed cotton = 1.562 bales of 480 pounds.  
 One metric ton of ginned cotton = 4.593 bales of 480 pounds.

# THE AGRICULTURAL SITUATION IN THE SOVIET UNION

## Review of 1974 and Outlook for 1975

### SUMMARY

Soviet agricultural production in 1974 failed by some 3 to 4 percent to maintain the record achieved in 1973 but exceeded by 7 percent the previous second-best year, 1971.

Weather in 1974 was not as favorable for agriculture as during the 1973 growing season. Spring arrived early, but then in the European USSR, the weather became cool and rainy, resulting in some delays in spring planting and some frost damage. Weather in the areas east of the Urals continued hot and generally dry well into the summer, causing a severe drought over a large part of Northern Kazakhstan and Western Siberia.

As a result, crop production fell about one-tenth short of the 1973 output. Only cotton among the major crops exceeded the 1973 level of output. Grains, sugarbeets, sunflowerseeds, and vegetables all were down some 9 to 12 percent and potatoes by 25 percent.

The gross harvest of 195.6 million metric tons of grain in 1974 was about 27 million tons less than the record 1973 crop, but almost 9 million larger than the previous second-best crop in 1970.<sup>1</sup> Almost all of the shortfall in the 1974 grain crop, compared with that in 1973, was attributable to wheat—83.8 million tons were harvested, 26 million less than in 1973. The spring wheat crop, at 39 million tons, was the smallest since 1965. The drought east of the Ural mountains reduced spring wheat yields and the area sown to spring wheat in 1974 was the smallest since 1954.

Government purchases of 1974 crop grain totaled 73 million tons. This amount is 17 million tons less than that purchased from the record 1973 crop and about 11 million tons less than the quantity planned. In view of the drought in spring wheat areas, Government wheat purchases were almost 20 million tons less than in 1973.

Grain utilization during 1974/75 is estimated at 205 million tons, roughly 10 million more than 1974 output. Grain purchases abroad could result in the USSR being a net importer of about a million tons in 1974/75. Thus, stocks will have to be drawn down

sharply unless the feeding of grain to livestock, estimated at 106 million tons, is curtailed.

Results for the industrial crops compared with 1973 were mixed. Cotton production was up sharply to 8.4 million tons (unginned), 10 percent above the 1973 crop. This increase was more than double the annual increases in the preceding 3 years. On the other hand, the sugarbeet and sunflowerseed crops were both down in 1974, sugarbeets by a little over 10 million tons to 76.4 million. Also, refined sugar production in 1974 (including the refining of imported raw) was 9.4 million tons, 1.3 million less than in 1973. Sunflowerseed production in 1974, at 6.76 million tons, was second only to the record 1973 crop. Vegetable oil output in 1974 was 3.4 million tons, 800,000 tons more than in 1973.

Potato and vegetable production both were below the 1973 record. The potato crop was extremely small, 27.5 million tons less than in 1973 and only 2.4 million larger than the disastrous 1972 crop. The 23.1-million-ton vegetable crop in 1974, although almost 3 million tons less than in 1973, was still the second largest for the USSR.

Performance of the animal husbandry sector during 1974 was the bright spot when compared with the year before. In the early part of 1973, livestock product output had been dampened by very limited feed supplies from the poor 1972 growing season. During the early part of 1974, however, feed supplies were very good as a result of record crops harvested in 1973.

The Soviet Union began 1975 with record livestock numbers, continuing an upward trend. Cattle and hog numbers on January 1, 1975, were both up 3 percent from a year earlier. Sheep and goat flocks as a total increased 2 percent during 1974 and the number of cows, 1 percent. Poultry numbers probably increased more than 5 percent. The expansion in numbers of livestock is attributable to the socialized sector.

Increases in the output of livestock and poultry products during 1974 were even more dramatic than the increases in herds. Production of both meat and eggs increased about 7 percent. The number of eggs produced per hen increased 3 percent. Beef, followed

<sup>1</sup>Tonnage figures are metric.

by pork, accounted for most of the million-ton increase in meat production between 1973 and 1974. Wool production increased 6 percent to 461,000 tons, an unusually large increase compared with those of recent years. Milk output in 1974 increased 4 percent to 91.8 million tons, because of the increase in cow numbers and a 2-percent increase in milk yield per cow.

There were a number of important policy developments during 1974 concerning Soviet agriculture. Great emphasis is being put on vertical integration in the USSR as a means of achieving better coordination in the food-and-fiber system. Activities concerned with livestock and poultry raising are important in this integration. A 15-year program was adopted in April 1974 for further development of agriculture in the Non-Black Soil Zone, located in the northern half of the European USSR. Crop yields in this region of generally adequate moisture are quite low. Also, a program to expand Government grain storage capacity by 40 million tons, or by almost a third, during 1976-80 was adopted. Existing storage facilities have not been adequate to store recent grain crops.

Capital investment in agriculture in 1974 was up a tenth, totaling 28.4 billion rubles, of which the Government provided 18.4 billion and collective farms, 10 billion. For 1975, a 9-percent increase in capital investment over 1974 is contemplated, or a total of 31 billion rubles.

Mechanization in Soviet agriculture continued to increase. A total of 347,000 tractors were delivered to agriculture in 1974, an increase of 8 percent but 3 percent short of plan. Truck deliveries (including specialized vehicles) totaled 250,000, an increase of 25,000. However, the 83,000 grain combines received were only 84 percent of the 99,300 planned.

Land reclamation is an important element in Soviet agricultural investment. More than a million hectares of newly irrigated land were put into use last year, but half of this represented the irrigation of improved pastures. Also, more than 800,000 hectares of land were drained. In 1975, another 985,000 hectares of land are to be irrigated and more than a

million hectares drained. These, however, do not represent net additions to the irrigated and drained areas in the USSR since some land goes out of use each year.

Soviet agriculture received 66 million tons of mineral fertilizer, 6 million more than in 1973, but about 700,000 tons less than planned for 1974. Deliveries of mineral fertilizers are to increase even more sharply in 1975—to about 75 million tons. Despite the shortfall in 1974 fertilizer deliveries, the overall 1971-75 plan will be exceeded slightly. Shortfalls in potash deliveries are being compensated for by other nutrients, primarily nitrogen.

Plans for 1975 call for the value of agricultural output to reach 104.5 billion rubles. Attainment of such a level would require much better than average weather. Crop production under normal weather conditions would exceed 1974 levels but probably would fall short of those achieved in 1973. Gains for 1975 in livestock products are likely to be quite modest because of the rather tight feed situation. Production of most crops and livestock products in 1975 probably will fall short of the goals originally set for 1975 in the 5-year plan. Eggs and cotton are the major exceptions. The grain harvest is not expected to reach the 215.7-million-ton goal unless area is expanded more than anticipated or weather is better than normal. A total of 34 million hectares of winter grains were sown last fall for harvest in 1975. This area is a million hectares less than planned and about 1.5 million less than sown a year earlier. Weather during the 1974/75 winter was unusually mild and winter grains apparently did not suffer abnormally heavy damage.

U.S. agricultural exports to the USSR during fiscal 1974 were \$589 million, compared with \$954 million in the previous year. Exports of about \$400 million are forecast for fiscal 1975. In January 1975, the USSR rejected the 1972 trade agreement with the United States, stating the rejection was based on their dissatisfaction with provisions of the U.S. 1974 trade act.

## WEATHER PROBLEMS BRING DECLINE IN AGRICULTURAL PRODUCTION

In 1974, gross agricultural production in the Soviet Union reportedly was valued at more than 94 billion rubles, about 3-4 percent below 1973's record value and far short of the 6.4-percent increase planned.<sup>2</sup> However, gross production over the first 4 years of the 1971-75 five-year plan (FYP) was more than 15 percent higher than during corresponding period of the 1966-70 plan.

Crop production in 1974 was valued about a tenth below the 1973 level, primarily because of less favorable weather. Except for cotton, production of all major crops was significantly smaller than the record (or near record for sugarbeets) crops harvested in 1973.

Livestock production, however, increased about 6 percent in value, partly offsetting the decline in crop production. Livestock performance in the early part of 1973 had been adversely affected by limited feed supplies from the poor 1972 crop, but supplies were good in 1974 as a result of the excellent 1973 crops.

<sup>2</sup>Currently, at the official Soviet rate, 1 ruble equals roughly 1.4 U.S. dollars. However, when traded on West European exchanges, the ruble is discounted considerably.

Also, 1974 weather conditions for pasture and hay crop development were generally favorable, except in drought-stricken areas of Siberia and Kazakhstan.

Several major weather problems were encountered in 1974. Spring arrived early but later became cold and rainy in European USSR. There was a rather severe drought over large parts of Northern Kazakhstan and Western Siberia. Conditions in the western part of European USSR varied greatly during 1974 from quite dry weather in the spring to excess precipitation and flooding in the fall. On the other hand, moisture supplies in 1974 were better than normal, even better at the end of spring seeding than in 1973, over most of the eastern part of European USSR—an area in which moisture usually is the major limiting factor in crop development.

### European USSR

Weather damage to fall-sown crops during the 1973/74 winter was about normal. In the southern part of European USSR, snow cover at times was insufficient to protect the winter crops from severe cold, but temperatures were not low enough to cause abnormally heavy damage. In January 1974, temperatures averaged near normal in European USSR, but varied among the different regions by plus or minus 5°F. By contrast, in January 1972, when winterkill was abnormally heavy, temperatures averaged 10°F. below normal and varied regionally from 5°F. to 16°F. below normal.

Thus, 30 million hectares of winter grains were harvested in 1974, over 5 million less than the 35.5 million hectares seeded the previous fall.

Spring arrived early in the European part of the USSR in 1974. Temperatures through the first 3 months of the year averaged 5°-10°F. above normal, a phenomenon that reportedly happens only once every 10-20 years. Sowing of early spring crops was started in the extreme south of European USSR about mid-February and by late-February certain fruit trees along the Black Sea coast were budding, some 3-4 weeks earlier than normal. The condition of the soil and stage of plant development at the beginning of April were reported to be like that normally prevailing in May. Shoots of early planted spring crops began appearing by mid-April in Moldavia and the southwestern part of the Ukraine, 3-4 weeks earlier than normal. Field work and spring seeding on a large scale began 5-10 days earlier than normal and by April 8 spring crops had been sown on 15.4 million hectares.

Weather then became cool and rainy, starting about mid-April. For 2 weeks, temperatures were 5°-10°F. below normal in European USSR. The cold was accompanied by rain and wind and occasionally by wet snow and frost. About mid-April and again in May, frost was experienced as far south as the Ukraine. This weather interfered with spring field work and the frosts did some damage to crops. During most of May, spring seeding was running some 2-4 days behind the rates achieved in the past several

years. Nevertheless, the plan for seeding spring crops reportedly was fulfilled by June 10, with 146 million hectares having been sown.

The cool, rainy weather continued until early August over most of European USSR. As a result of this weather and the delay in spring seeding, harvesting got off to a late, slow start. By mid-July 1974, 8 million hectares of grain had been cut, only about half as much as in the preceding several years by that date. In the first week of August, the area of grain cut was 80-85 percent of that cut by the corresponding periods in 1971-73. The rainy weather continued to interfere with the grain harvesting until mid-August.

The weather from mid-August until late fall over much of European USSR was abnormally warm and relatively dry. This weather aided the completion of small grain harvesting, fall seeding and plowing, and the harvesting of late crops. However, in late October and early November, there was very heavy rainfall in the western part of European USSR that resulted in severe flooding in the Western Ukraine and in Belorussia. Although these areas are not of major importance in Soviet crop production, considerable damage was done to such crops as sugarbeets and potatoes that remained to be harvested or transported and to hay, silage, and straw.

### Siberia

Spring also arrived early in Northern Kazakhstan and Western Siberia. Temperatures during March in Northern Kazakhstan averaged 5°-10°F. above normal. The very warm, dry weather reportedly contributed to the rapid drying out of the soil. In the steppe areas of Western Siberia and Northern Kazakhstan, the soil was ready to be cultivated during the first part of April, and some 1-2 weeks earlier than normal and 4-6 weeks, before the optimum time for seeding. The very warm weather, with maximum daily temperatures frequently in the 80's and 90's and occasionally over 100, continued through May and June. Such weather, sometimes accompanied by strong winds, resulted in a depletion of soil moisture. By early June, moisture supplies were reported to be much lower than normal.

Nor did the weather problem east of the Urals end with what was described as the unusually early, warm, dry spring. The eastern half of Northern Kazakhstan and the Altay Kray and adjacent areas of Western Siberia continued to experience hot, dry weather in July and August. One statement described the drought as unprecedented. The grain was stunted and ripened several weeks earlier than normal. Then when harvesting was underway the weather over much of Northern Kazakhstan and Western Siberia turned cool and rainy, which interfered with the harvesting work. In Kazakhstan, for example, about a fourth of the grain that had been cut down into windrows by early September had not been picked up and threshed. (Fletcher Pope, Jr.).

## SECOND LARGEST GRAIN CROP

Gross 1974 grain production (including pulses) in the USSR totalled 195.6 million tons, down 12 percent from the record 1973 crop but 5 percent larger than the previous second-best crop, harvested in 1970 (table 8).<sup>3</sup> The 1974 outturn was 5 percent short of the 205.6 million tons planned and about the same amount short of estimated 1974/75 grain requirements for domestic use.

Production was down most sharply in the Kazakhstan-Siberian area, clearly owing to the impact of the drought. For example, the 1974 Kazakhstan grain crop was down 9 million tons and only about two-thirds as large as the 1973 crop. Output in the Russian Federation (RSFSR) was down 17 million tons. Evidently, a major share of this decline occurred in Siberia. For the other republics, a small decrease in the Ukraine was largely offset by bumper harvests in Belorussia and the Baltic republics.

### Wheat

Wheat production totaled 83.8 million tons and accounted for 43 percent of the 1974 grain crop. The wheat harvest was down about a fourth from the record 1973 crop and 16 percent, or 16 million tons, below the planned 100 million tons.<sup>4</sup> The shortfall was primarily due to a very small spring wheat harvest, particularly in the regions east of the Ural Mountains where drought resulted in the lowest yields since 1967. Furthermore, the 1974 area seeded to spring wheat, at 41 million hectares, was 8 percent less than in 1973 and the smallest since 1954—the first year of the New Lands plow-up program.

The 1974 Soviet wheat crop was unusual in that more than half of the total was winter wheat. Winter wheat production was 45 million tons, only 3 to 5 million tons short of the record harvests in 1971 and 1973. Since the New Lands were developed, winter wheat has accounted for more than half the total wheat crop only in 1955 and 1965, when the spring wheat regions were also affected by drought.

Results during the past 3 years demonstrate that wheat harvests as well as total grain crops in the Soviet Union are still subject to wide fluctuations (fig.1). During 1960-74, wheat contributed almost as much as all other grains combined to the upward trend in total grain production. However, year-to-year variability in wheat production is much greater than that of all other grains combined. During 1960-74, a third of all grain crops deviated from trend production by more than 15.5 million tons. For grains

<sup>3</sup>The Soviet gross grain production data as well as the grain yield data used in this report are in terms of "bunker weight"—that is, grain as it comes from the combines and thus containing varying amounts of moisture and foreign matter. All tons are metric.

<sup>4</sup>For a breakdown of the planned goals for 1974, see "The Agricultural Situation in the Soviet Union: Review of 1973 and Outlook for 1974," ERS-Foreign 358, p. 21.

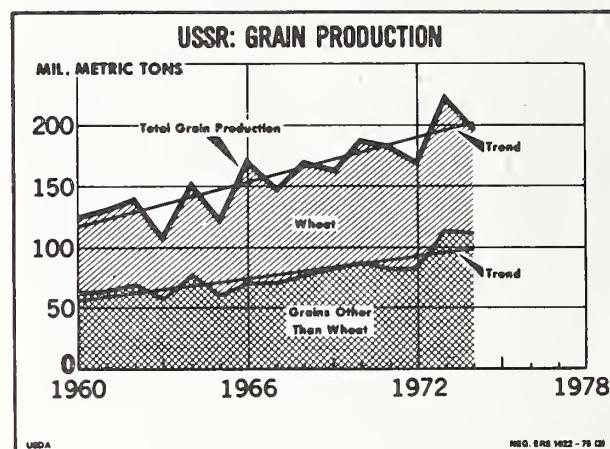


Figure 1

other than wheat as a group, two-thirds of the crops fell within 7.5 million tons of the trend, while for wheat, two-thirds of the crops were within a range of about 11 million tons around the trend line.

### Other Grains

Production of the major coarse grains (rye, barley, oats, and corn) in 1974 was 97 million tons, equal to the 1973 record crop and almost a tenth larger than the 88.7 million tons planned. For the individual grains, however, there were sharp differences relative to 1973 production and that planned for 1974.

The 54-million-ton barley crop was a million tons below the 1973 record but a fourth larger than the planned 43 million tons. Barley area (31 million hectares) was 29 percent larger than the 24 million hectares planned, despite no abnormally large reseeding to barley because of winterkilled wheat and rye. Wheat area was 60 million hectares, compared with 63 million hectares planned, due to a reduction in seeding of spring wheat. Thus, there appears to have been a deliberate shift of some area from spring wheat to spring barley, as well as an over-fulfillment of the planned total area of grain, primarily with barley.

The 15-million-ton rye harvest in 1974 was the largest since 1965 and 40 percent larger than the relatively small 1973 crop, primarily because of an expansion in area. The 1974 corn crop, reported at 12.1 million tons, was 3 million tons below plan and 10 percent less than in 1973. Soviet rice production continued its uptrend in 1974, reaching 1.9 million tons.

### Harvesting and Marketing Problems

The quality of the grain produced in 1974 apparently was considerably better than in 1973, but

still probably somewhat below average. Precipitation during small-grain harvesting was above normal, both in European USSR as well as in the areas east of the Urals but not nearly as much above as in 1973. Lodging of the grain, due to above normal precipitation combined with relatively heavy fertilization, again was reportedly widespread in 1974. Also, there probably were fewer problems in handling and storing the smaller 1974 grain crop.

Losses in the harvesting of lodged grain were reduced by techniques observed, for example, by a USDA delegation in Ulyanovsk Oblast (located in the upper Volga Region). A field of badly lodged winter rye was being cut at a height of only about 1 to 2 inches above the ground. The combine had to be operated at a very slow speed because of the tremendous amount of straw that was being put through it. Nevertheless, losses were kept to a minimum under the circumstances, with few unthreshed heads remaining on the ground and relatively few kernels observed on the ground or in the straw piles being dumped from the combine.

State grain procurements from the 1974 crop were 73.3 million tons, 17 million less than the record procured in 1973 and 11 million less than planned. Thus, the shortfall in procurements relative to those planned was about the same amount as the shortfall in production. Also, as with production, the shortfall in grain procurements was attributable to the RSFSR (9 million tons or 17 percent less than in 1973) and to Kazakhstan (7 million tons or 41 percent less). According to preliminary data, Government procurements of wheat in 1974 totalled only 38.3 million tons, almost 20 million less than record 1973 wheat procurements.

#### Area and Fertilizer Use

Area expansion and increased use of fertilizers contributed to the harvest of the second-best Soviet grain crop on record in 1974. Total grain area, at 127.2 million hectares, was the largest since 1965 but only slightly greater than in 1973. Area expansion in the USSR is being accomplished by improvements in cropping patterns, including the substitution of grain crops for low-yielding forage crops.

The sown area of all crops in the USSR has also been increasing, by roughly the same amount as the increase in grain area. Some forage crop area is being shifted into grain area, but not at the expense of an equivalent decrease in forage crop area. Observations last summer in Tambov Oblast (located in the Central Black Soil Region) indicate that in suitable locations, the spaces between the highway and the shelterbelts along the road were being plowed up and sown with such perennial grasses as clover and alfalfa. Formerly, these areas were not cultivated by the farms but wild hay from them was frequently harvested by the farmers to feed privately-owned livestock.

Fertilizer deliveries to farms have been increasing by about 4 to 5 million tons (standard units gross weight) annually, and rose by 5.4 million tons in 1974. Most of the additional fertilizer is being used on grain crops, since use on industrial crops, such as cotton and sugarbeets, is already relatively high. Thus, much of the annual increment of 6 million tons in the upward trend in Soviet grain production during the period 1960-74 is attributable to increased fertilization. In 1975 the Soviets plan to use 33 million tons of mineral fertilizers on grain crops. (Fletcher Pope, Jr.)

## GRAIN UTILIZATION EXCEEDS HARVEST

It is estimated that in 1974/75, grain utilization in the Soviet Union will be 205 million tons—roughly 10 million more than 1974 production—and that net imports will total about a million tons. The remaining requirements will probably be met by a drawdown in stocks. It is estimated that 106 million tons of grain will be used for livestock feed in 1974/75, with all other uses accounting for the remaining 99 million (table 1).<sup>5</sup>

The estimated grain balances in table 1 provide a consistent picture over time. They indicate that

<sup>5</sup>The Soviets publish little information on grain utilization relative to that on grain production, and no information on grain stocks. The utilization figures in table 1 are estimated, and the stock changes are the difference between production (adjusted for net trade) and utilization. Thus, stock data contain the results of any errors in the production and utilization estimates.

Soviet grain use has been pressing hard against the grain supply in recent years, as evidenced by net grain imports. Carryover grain stocks at the end of the 1963/64 utilization year, following the disastrous 1963 grain crop, are believed to have been at a minimum level and may have been even less than normal pipeline stocks. Based on estimated stock changes since then, the Soviets by June 30, 1975, probably will not have added more than about 10 million tons to stocks. Such an addition to grain stocks seems quite small in view of the size and variability of Soviet grain crops. Between 1961-65 and 1971-74, Soviet grain output increased by more than 60 million tons. Furthermore, during the 15-year period 1960-74, one-third of the Soviet grain crops deviated from trend by more than 15.5 million tons. Finally, extremes in variability of Soviet grain crops from one year to the next, such as between 1965 and 1966 and between 1972 and 1973, exceed 50 million tons.

Table 1--Grain: Total supply and utilization, USSR, 1964/65-1974/75

Year	Pro- duction: 1/	Net trade: 1/	Availa- bility:	Utilization					Stock change 1/
				Total	Seed	Indus- trial	Food	Waste	
<u>Million tons</u>									
1964/65	152	-1	151	132	22	3	45	17	45
1965/66	121	+4	125	139	24	3	44	12	56
1966/67	171	-1	170	144	24	3	44	14	59
1967/68	148	-4	144	147	24	3	44	12	64
1968/69	170	-6	164	161	25	3	44	17	72
1969/70	162	-5	157	177	23	3	45	23	83
1970/71	187	-7	180	187	25	3	45	22	92
1971/72	181	+2	183	183	26	3	46	13	95
1972/73	168	+20	188	187	26	3	46	15	97
1973/74	222	+5	227	215	26	3	46	36	104
1974/75	196	+1	197	205	26	3	46	24	106

1/ Minus indicates net exports or draw-down of stocks.

## Utilization

Seed, industrial, and food uses of grain in the Soviet Union have been quite stable over time.<sup>6</sup> About 25 million tons are used annually for seed. Industrial use of grain is very small, estimated at 3 million tons each year. Food use has held at about 45 million tons, with the decrease in per capita consumption offset by the increase in population.

Waste is the most variable component in Soviet grain utilization. Waste in 1973 was estimated at 36 million tons, 16 percent of the record crop.<sup>7</sup> There were frequent rains in 1973 during harvesting in European USSR and in the areas east of the Ural mountains. Waste from the 1974 grain crop, when precipitation during harvesting again was above normal, but not nearly as much as in 1973, is estimated at about 12 percent, or 24 million tons.

Feed use is the one component in Soviet grain utilization that has been increasing most rapidly.<sup>8</sup> In the mid-1960's, it is estimated that feed accounted for only around a third of total Soviet grain utilization, while at present it accounts for more than half. The amount of grain for feed has more than doubled in the past 10 years.

Wheat has been an important factor in the increased use of grain for feed. Since 1969/70, it is estimated that some 30-40 million tons of wheat have been used annually for livestock feed in the Soviet Union. Thus, wheat has accounted for as much as 40-45 percent of the total amount of grain used for feed. However, with the relatively poor 1974 wheat crop and good feed grain crops, it is estimated that wheat

will make up only a little over a fourth of the grain used for feed in 1974/75. Nevertheless, this will amount to almost 30 million tons.

Changes in carryover grain stocks in the USSR have fluctuated widely during the past 10 years. Additions to such stocks since 1963/64 are estimated to have reached a maximum of about 30 million tons in 1966/67-1968/69. In the following 2 years, however, these stocks apparently were drawn down sharply to a level only about 5 million tons above that at the end of 1963/64. There were probably no significant changes in stocks until the record 1973 grain crop plus imports permitted a buildup estimated at somewhat more than 10 million tons. In turn, the short 1974 grain crop has again necessitated a drawdown in stocks to less than 10 million tons above the 1973/64 level. It bears repeating that the stock data are subject to a wide range of error because each of the annual changes is a residual subject to cumulative errors of estimating other uses.

## Foreign Trade

The Soviets have been net importers of grain during the past 3 years (table 2). Net imports in 1971/72 totaled 2 million tons, despite the fact that the 1971 grain crop was at the time second only to the 1970 record. Soviet net grain imports then jumped to 20 million tons in 1972/73 following the poor 1972 crop. Delayed delivery of some grain purchased in 1972, plus additional purchases early in 1973, resulted in net imports of 5 million tons in 1973/74, in spite of the record 1973 grain harvest.

The Soviets are expected to remain net grain importers in 1974/75, but of only about a million tons. Total grain imports in 1974/75 are estimated at 6 million tons, including 3.3 million of wheat and 2.5 million of feed grains. The United States and Australia are expected to be the principal wheat suppliers, providing about 1.1 million tons each. The major feed grain suppliers are expected to be the United States (1.1 million tons) and Argentina (900,000 tons). The Soviets attempted to purchase 3.4 million tons of grain from the United States in early October 1974 and indicated an interest in purchasing additional quantities. However, by mutual agreement between the United States and the USSR, the corn purchase from the United States was reduced by about a million tons.

The Soviets will export an estimated 5 million tons of grain in 1974/75. Except for an estimated half million tons of feed grains, all of these grain exports will be wheat. Most of the exports will go to East European countries with which the USSR has bilateral trade agreements calling for grain exports. The Soviets to date have not responded positively to requests made in 1974 by India for grain to help meet shortages in that country.

Soviet purchases of U.S. grain and soybeans caused the value of U.S. agricultural exports to the USSR to reach a peak of \$954 million in 1972/73 and

<sup>6</sup>The seed use estimates in table 1 are based on information on seeding rates, or seeding norms for the various grains, and occasionally a published seed-use figure. The changes in seed use largely reflect changes in grain acreage and some reseeding in years when winterkill is abnormally heavy. Food use is derived by multiplying per capita consumption data by the population and converting to whole-grain equivalent on the basis of assumed milling rates.

<sup>7</sup>Waste includes not only the grain normally lost in handling and storage, but also excess moisture and foreign matter contained in the grain, since Soviet production data are in terms of "bunker weight"—i.e., the weight of the grain as it comes from the combines. An average waste factor of 10 percent is estimated, roughly 5 percent for normal waste and 5 percent for excess moisture and foreign matter. Soviet officials have indicated that an allowance of 5-6 percent for excess moisture and foreign matter is reasonable. The 10-percent waste factor appears to be reasonably accurate over time, but in individual years waste is estimated to vary from a low of about 5 percent (largely normal losses in dry years when there is no excess moisture and foreign matter) to a high of 15 percent or somewhat more (years when there is a lot of precipitation during harvesting and excess moisture and foreign matter would add 10 percent or more to normal losses).

<sup>8</sup>Estimates of grain used for feed are based on statements by Soviet officials concerning feed use of grain, data on feed production and use contained in Soviet statistical handbooks, and information on feeding rates and feeding efficiency relative to livestock numbers and the output of livestock products.

Table 2--Grain: Foreign trade, total and with the United States,  
USSR, 1971/72-1974/75 1/

Item	Total			With the United States		
	1971/72	1972/73	1973/74	1974/75	1971/72	1972/73
				<u>2/</u>	<u>2/</u>	<u>2/</u>
<u>Million tons</u>						
Wheat:						
Imports .....	3.4	<u>3/14.9</u>	4.4	3.3	0	9.5
Exports .....	5.8	<u>1.3</u>	5.0	4.5	0	2.7
Net trade .....	-2.4	<u>+14.6</u>	-.6	-1.2	0	+9.5
Rye:						
Net trade .....	-.2	<u>+.5</u>	<u>+.5</u>	<u>4/</u>	0	<u>+.2</u>
Feedgrains:						
Imports .....	4.3	<u>5.9</u>	6.2	2.5	3.0	<u>4.0</u>
Exports .....	.7	<u>.4</u>	.9	.5	0	<u>0</u>
Net trade .....	+3.6	<u>+5.5</u>	<u>+5.3</u>	<u>+2.0</u>	<u>+3.0</u>	<u>+4.0</u>
Rice, milled:						
Net trade .....	<u>+.3</u>	<u>+.2</u>	<u>+.2</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total grain:						
Imports .....	8.0	<u>21.5</u>	<u>11.3</u>	6.0	3.0	<u>13.7</u>
Exports .....	6.7	<u>1.7</u>	<u>5.9</u>	<u>5.0</u>	0	<u>0</u>
Net trade .....	+1.3	<u>+19.8</u>	<u>+5.4</u>	<u>+1.0</u>	<u>+3.0</u>	<u>+13.7</u>
						<u>7.8</u>
						<u>0</u>
						<u>+7.8</u>
						<u>+2.2</u>

1/ Plus equals net imports and a minus, net exports. 2/ Estimates. 3/ In addition, an estimated one million tons were re-exported to Eastern Europe. 4/ Less than 50,000 tons.

to equal \$589 million in 1973/74 (table 14). It is estimated that U.S. farm exports to the USSR this year (1974/75) will be about \$400 million. In January 1975, the USSR announced that it was rejecting the

1972 trade agreement with the United States, stating the rejection was based on the Soviets' dissatisfaction with provisions of the U.S. 1974 trade act. (Fletcher Pope, Jr.)

## ANOTHER RECORD COTTON CROP

In 1974, the USSR made an outstanding achievement in cotton production with an output of 8.4 million tons (unginned)—the fifth record crop in succession (table 9). Ten percent higher than the record set in 1973, last year's harvest was achieved despite a late, cool spring and some delays in seeding. Also, irrigation supplies in Soviet Central Asia, the major cotton-growing region, were again lower than usual. This problem, as in some previous years, was resolved by constructing connecting canals to feed systems having little water supply, digging thousands of additional wells, repairing and bringing into operation hundreds of pipes to collect and carry water pumped from beneath river beds, and facing miles of irrigation canals with concrete to decrease water losses.

Cotton area continued to expand in 1974, reaching a record 2.9 million hectares. Planted area was 5 percent more than in 1973 and 14 percent more than the 1966-70 average. Most of the area expansion in the past several years has taken place in Uzbekistan, which produces about two-thirds of total Soviet cotton output, and in Turkmenistan, which in recent years has boosted its cotton output to an average of 13 percent of the total (compared with an average of 10 percent during the 1960's). Further development of cotton production in Uzbekistan has been underway through opening up of new cotton areas in the Karshi and Dzhizak Steppes. Development of cotton production in Turkmenistan is taking place through construction of the Kara-Kum Canal. Thus far, 950 kilometers of the Canal have been completed, enabling irrigation of new cotton fields along an 860-kilometer stretch. This Canal is scheduled to be completed in 1975 and will reach 1,000 kilometers from the Amu-Darya River (which separates Turkmenistan from Uzbekistan) to the Caspian Sea.

Some developments in cotton production technology and related experiments were discussed in 1974. On some farms, skip row cotton planting was introduced to increase the density of the plants. Attachments were welded to discs of the regular 90-centimeter interrow seeders to carry out the necessary conversion. Polyethylene sheets were used to cover newly seeded cotton fields to accelerate plant growth (this method is planned to be applied to all cotton areas in Uzbekistan in 1975, since initial results reportedly have shown that plant growth can be speeded up by 20 days). Instead of chemicals, biological methods (i.e., beneficial insects and micro-organisms) were used to combat the boll worm and cotton wilt. For this purpose, 20 laboratories in Uzbekistan are now breeding a species of *trichogramma*—a group of related parasites—and a

plant is near completion in that republic to produce entomophages—parasitoids and predators which reportedly were used successfully against cotton pests and diseases in 1973.

The Soviets also announced that they had successfully produced (under laboratory conditions) cottonseed flour from cottonseed meal. Laboratory experiments and tests to extract edible protein from cottonseed have been underway since 1966; the breakthrough occurred in a pilot-plant operation in Tashkent, the capital of Uzbekistan. Furthermore, tests have involved baking the typical Uzbek flat bread from wheat flour, enriched with protein from cottonseed flour. Reportedly, the bread with this new combination has received high ratings from Moscow officials.

The 1974 cotton crop will yield a record 2.8 million tons of lint, up from 2.6 million from the 1973 crop (table 3). In 1974, availability of cotton lint from the 1973 crop totaled almost 600,000 tons more than estimated domestic use. Lint from the 1974 crop is expected to be nearly 800,000 tons more than projected domestic use in 1975. Supplies available for domestic use—which reached a high in 1971 and declined in 1972 because of large net exports—dropped again in 1973, when net exports were the heaviest ever recorded. Based on the excess of lint production in 1974 over estimated 1974 domestic utilization, the USSR could have been a net exporter of over 600,000 tons of lint cotton in 1974—that is, if the level of change in carryover stocks made in 1974 was about the same as in 1973.

Soviet lint cotton exports in 1973 were a record 728,000 tons, rising 12 percent above the 1972 level. Japan continued to be the largest buyer in 1973, taking almost 118,000 tons. England, France, and West Germany accounted for a total of almost 119,000 tons. The bulk of the remainder was accounted for by East European countries, which imported 345,000 tons—Poland, East Germany, and Czechoslovakia were the largest buyers. Decreases in lint cotton imports in 1971, 1972, and particularly in 1973—when imports fell to the lowest level since 1968—have contributed to the USSR's net export position. Data on 1974 lint cotton exports to recipient countries are not yet available, except for Japan, but a continuation of recent trends would have resulted in a further rise in the USSR's net exports in 1974. During January-November 1974, Japan imported 117,000 tons of lint cotton from the USSR—about the same as in 1973—and probably continued to be the largest buyer again in 1974. The outstanding 1974 cotton crop would again place the USSR in a position

Table 3--Cotton lint: Production, trade, and estimated utilization,  
USSR, averages 1966-70 and 1971-75, annual 1966-75

Year	<u>1/</u>	Production	Imports	Exports	Net	Supplies	Estimated
		1,000 tons					
1966		1,937	173	508	335	1,602	1,565
1967		2,056	144	534	390	1,666	1,619
1968		2,040	137	554	417	1,623	1,673
1969		1,995	170	452	282	1,713	1,728
1970		1,915	258	516	258	1,657	1,782
1966-70 average <u>4/</u>		1,989	176	513	337	1,652	1,673
1971		2,343	243	547	304	2,039	1,837
1972		2,380	167	652	485	1,895	1,891
1973		2,450	131	728	597	1,853	1,946
1974 <u>5/</u>		2,600	125	800	675	1,925	2,000
1975 <u>5/</u>		2,850	125	800	675	2,175	2,055
1971-75 average <u>4/</u>		2,525	158	705	547	1,977	1,946
							+31

NA = not available.

1/ Lint cotton produced from crop harvested in the previous year. One ton of lint cotton equals 4.6 bales of 480 pounds each.

2/ Production minus net exports.

3/ Linear 1961-1973 trend of supplies available for domestic utilization.

4/ Averages do not add due to rounding.

5/ Estimates.

to expand net exports in 1975. However, Soviet net exports of lint cotton in 1975 could very well remain at about the estimated 1974 level, assuming that a

portion of the increased output would be used to replenish stocks drawn down in 1973 and probably again in 1974. (Angel O. Byrne)

## A FAIR VEGETABLE OIL SITUATION

USSR sunflowerseed production, which made a striking recovery in 1973 after 4 years of steady decline, dropped again in 1974 and was 8 percent below plan. Some unfavorable weather during the seeding and growing seasons, and especially during the harvesting periods, contributed to the decline. The 6.8 million-ton output was, however, second only to the record 7.4 million tons produced in 1973 (table 9). The 1974 sunflower area was close to 4.7 million hectares—somewhat less than in 1973, slightly above the area planned, but again below the 1966-70 average. Yields fell to 14.4 quintals per hectare, well below the 1973 level but were about on trend.

Government purchases of sunflowerseeds were 5.2 million tons in 1974, falling far short of the 5.7 million tons planned and well below the 5.6 million-ton record set in 1973. Government supplies of cottonseed from the record 1974 cotton crop are expected to reach about 5.5 million tons, a 10-percent increase over the 1973 level.

Vegetable oil output from Government oilseed supplies during September 1973-August 1974 was a record, and 34 percent above the year-earlier level (table 9). The high level of sunflowerseed purchases from the 1973 crop was the principal reason for the increase. Also important were an increase in cottonseed from the good 1973 cotton crop and a recovery in the 1973 soybean crop (table 10).

Vegetable oil output during September 1974-February 1975 was almost the same as the record output during the corresponding period a year earlier (table 11). Lower sunflowerseed supplies from the reduced 1974 crop apparently were offset to some

degree by increased cottonseed supplies from the record 1974 cotton crop. Based on raw materials available, it is expected that total vegetable oil output during September 1974-August 1975 will decline about 150,000 tons from the previous season.

Soviet imports of oilseeds in 1972 and 1973 were boosted sharply by the one-time purchase of almost a million tons of U.S. soybeans in 1972. Excluding the soybean purchase, imports of oilseeds in 1972 and 1973 were 82,000 tons and 62,000 tons, respectively—the largest annual imports since 1965—and consisted mainly of copra, peanuts, and flaxseed. No deviation from import patterns prior to at least 1972 were noted in 1974. Edible vegetable oil imports dropped 4 percent in 1973, 5,000 tons less than average imports during 1970-72. Vegetable oil imports during 1970-73 consisted mainly of linseed oil, coconut oil, and olive oil. It is estimated that imports probably increased again in 1974, by about 5 percent.

Soviet exports of oilseeds and oilseed products have decreased sharply—especially oilseeds, cake, and meal—since the late 1960's because of continued declines in oilseed output from poor crops and rising internal requirements. Average sunflowerseed exports in 1970-73 fell a sharp 68 percent below the 1966-69 average, while oilcake and meal average exports fell a drastic 88 percent (table 13). Vegetable oil (primarily sunflowerseed oil) exports during 1970-73 averaged 394,000 tons, compared with an average of 657,000 tons in 1966-69—a 40 percent decrease. The very good 1973 oilseed crops probably allowed Soviet exports of vegetable oil in 1974 to be above the low 1973 levels. (Angel O. Byrne)

## TIGHT SUGAR SITUATION LIKELY TO WORSEN THIS YEAR

The 1974 Soviet sugarbeet crop of 76.4 million tons was mediocre. It was equal to that harvested in 1972 but 10 million tons less than the relatively good 1973 crop and 4 million tons less than the 1967-71 average. Government purchases of sugarbeets from farms were only 66.7 million tons—down more than 10 million tons from 1973 and 18 million tons below plan.

The 3.6 million hectares planted to sugarbeets in 1974 was slightly higher than in 1973 and the largest sugarbeet area since 1967. The 1974 yield, however, was the lowest in 5 years, largely because of adverse weather. Soviet press reports complained about the unusual weather causing considerable bolting of the

beet plants. Bolting occurs when a beet plant shoots up a stalk which blooms and then produces seed in the same year the seed was planted, using up the nutrients (including the sugar) in the beet roots. Normally, the beet root grows the first year and produces seed the second year. Also, the heavy rains and flooding in the western part of European USSR last fall probably caused problems in harvesting and transporting the beets. By October 21, 1974, only 82 percent of the sugarbeet area had been harvested, compared with 91 percent by the corresponding date in 1973.

Soviet sugar production in 1974 totaled 9.4 million tons, down from 10.7 million tons produced the year

before, but 4 to 5 percent more than was produced in 1971 and 1972.<sup>9</sup> However, with the exception of these 2 years, 1974 sugar production was the smallest since 1964. Both decreases in production of sugar from beets and in refining of imported raw sugar contributed about equally to the drop in 1974 sugar production. Factors contributing to the decrease in beet sugar production probably include the relatively low sugar content of the beets from the 1974 crop and the delay in starting processing due to the rather late 1974 beet harvest.

Some decrease in sugar consumption probably occurred in the USSR during 1974, unless there were ample carryover stocks, which is doubtful. At the 1973 rate of 40.8 kilograms of sugar per capita (43 kilograms planned for 1975), total consumption in 1974 would have exceeded sugar production by almost a million tons. For sugar consumption to have declined to the level of production in 1974, per capita intake would have had to have decreased by almost one-tenth and to have been at about the 37-to 38-kilogram level realized in 1968, and an amount about equal to that consumed currently in the European Community (EC). It is unlikely, however, that the decrease was that sharp. State and cooperative outlets in the USSR reportedly sold the same amount of sugar in 1974 as in 1973. However, industrial use of sugar in producing confections and other products was most likely down in 1974.

Soviet sugar stocks at the beginning of 1974 are not known but are believed to have been inadequate to support consumption at the 1973 per capita rate. During 1966-71, when the sugar situation in the USSR apparently was relatively good, sugar stocks on January 1 ranged from about 5.5 million to 6.5 million tons, amounts equal to roughly two-thirds of annual sugar consumption. However, by January 1, 1972, sugar stocks had dropped by 2 million tons to 3.5 million and by the beginning of 1973, had declined to 3.0 million tons, only about one-third of estimated consumption. Sugar production in 1973 would not have permitted a major rebuilding of stocks since it exceeded estimated consumption by only about half a million tons.

The change in the sugar trade pattern associated with this decline in sugar stocks suggests that the Soviet sugar situation became very tight following 1971 and has continued so. Between 1960 and 1972,

<sup>9</sup>All sugar data in this report are in terms of refined sugar unless otherwise indicated.

Cuba provided all of the raw sugar imported by the USSR, but in 1972 and 1973, some raw sugar was also imported from a number of other countries, including Brazil and Australia. Also, Soviet trade in refined sugar changed abruptly from net exports of a million tons or more during 1966-71 to net imports of relatively small amounts in 1972 and 1973. In the latter 2 years, Soviet refined sugar exports dropped to insignificant amounts.

Soviet sugar exports during January-September 1974 were 91,009 tons (raw value), over three times as much as the 25,881 tons exported in the first 9 months of 1973, but still relatively small. Also, most of the increase represented shipments to Afghanistan and Finland, countries with which the Soviets probably have definite commitments under trade agreements.

Sugar imports during the first 9 months of 1974 again came only from Cuba, suggesting that other suppliers may not have been necessary to fulfill Soviet domestic requirements. The high price of sugar on the world market in 1974, however, probably was an important factor in the Soviet decision to confine its purchases to Cuba.

The mediocre 1974 sugarbeet crop apparently forced the Soviet Union to reverse this decision and to take measures to increase sugar imports. By the end of 1974, the USSR had purchased close to 300,000 tons of sugar from such countries as Brazil, Australia, Guyana, and Peru. Additional sugar purchases from these sources are possible. Also in 1974, the Soviets reportedly agreed to almost double the price paid to Cuba for sugar, but they still will be paying only about two-thirds of the world sugar price that prevailed during 1974.

The Soviet sugar situation during 1975 may be worse than the tight situation in recent years. Sugar production will most likely be less than in 1974, primarily because the smaller 1974 sugarbeet crop should result in less beets being processed in the early part of 1975 than were processed in early 1974. Furthermore, the Soviets may not be able to increase sugar imports from Cuba in 1975, even with the higher prices, because the cane harvest there promises to be no better than the year before. Also, sugar purchases to date from countries other than Cuba are not believed sufficient to offset the likely decrease in Soviet sugar supplies from the relatively poor 1974 domestic beet crop. Thus, the Soviets probably will have to wait for a good 1975 sugarbeet harvest before the sugar situation is likely to significantly alleviated. (Fletcher Pope, Jr.)

## POTATOES DROP SHARPLY; VEGETABLES OFF

Potato production dropped sharply in 1974, falling to the second lowest level of output in the past 10 years. The 81-million-ton output was 25 percent below the 1973 record, 15 percent lower than average 1966-

70 output, and only 3 percent above the disastrous crop in 1972, when potatoes were imported from Poland. Government purchases of potatoes from the 1974 crop totaled 11.2 million tons, 4.2 million less

than the record purchases in 1973 and slightly less than average 1966-70 purchases.

The poor 1974 crop resulted from adverse weather conditions in some major potato-growing regions. Cool weather and excessive moisture during the growing seasons caused delays in planting, slowed down plant growth, washed off applied fertilizers, intensified weed growth, increased the incidence of diseases (potato blight and root rot), and hindered the development of tubers. Torrential rains and flooding caused delays in harvesting and reportedly did heavy damage to the unharvested potatoes along the western border of European USSR.

The 1974 vegetable crop reached 23 million tons, one-tenth less than the record 26 million-ton crop in 1973. The 1974 crop was 6 percent below plan, but still the second largest on record. Government purchases

from the 1974 crop totaled a record 14.7 million tons, 600,000 tons more than from the record 1973 crop.

Effects of adverse weather on vegetable production probably were reduced by measures adopted to increase output. In 1974, commissioning of irrigated land near large cities and industrial centers for the production of vegetables was, for the first time, actually inserted and approved in a national plan. The Government budget plan called for the initial irrigation of 136,000 hectares of land for vegetable growing in 1974 and also for an additional 150,000 hectares in 1975. Soviet planners have selected 100 cities as centers for growing vegetables under irrigation. In addition, more effort and investments are to be made in the next several years for further construction and development of greenhouse vegetable-growing in the vicinities of large industrial centers. (Angel O. Byrne)

## RECORD LIVESTOCK SECTOR PERFORMANCE

Soviet livestock production in 1974 received a major boost from the record level of feed supplies produced in 1973. Inventories of major categories of livestock on January 1, 1974, were at record or near record levels. Output of livestock products increased about 6 percent in 1974, compared with a gain of 2-3 percent in 1973. Except for milk, output during the second half of 1974 still showed strong gains over the corresponding period in 1973, despite the slippage in feed production in 1974.

### Meat

Meat output in 1974 jumped a million tons (7 percent)—the largest gain since 1971 (table 4). Production (slaughter weight) on collective and state farms contributed most of the increase and accounted for about three-fifths of the total as in 1973 (table 15). Percentage increases in 1974 were distributed relatively uniformly among major types of meat,—beef, pork, and poultry meat ranging from 8 to 9 percent. Mutton production was up 5 percent. Beef production made the largest quantitative growth, followed by pork, which recovered from the 1973 slump. (fig. 2).

Data were published in 1974 for the first time on numbers of livestock slaughtered (table 16). They indicate annual slaughter in recent years of roughly 35 million head of cattle, 65 million head of hogs, and almost 60 million sheep and goats. Average live weights at slaughter can be calculated. The results show average cattle and calf slaughter weights of less than 300 kilograms (weights are considerably higher for socialized farms than private holdings); average hog slaughter weights of just over 100 kilograms (considerably higher for private holdings); and average sheep and goat slaughter weights of 30-35 kilograms (higher on private holdings). Estimating

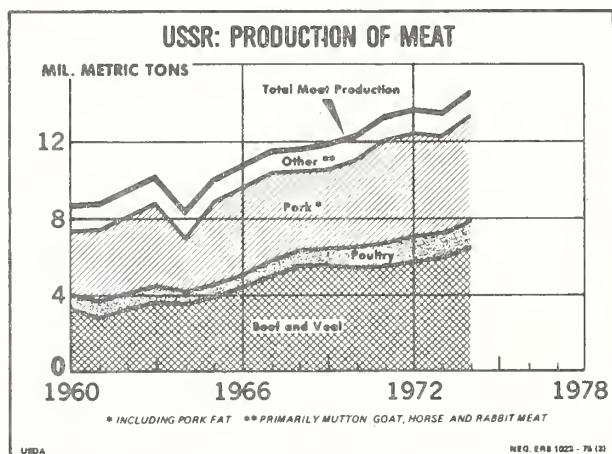


Figure 2

an overall increase of 5 percent in 1974, the average weight of cattle slaughtered probably reached almost 300 kilograms and the number slaughtered probably increased less than a million head or about 2 percent. The average weight of cattle sold to the Government—which accounts for about four-fifths of total cattle slaughterings—jumped 6 percent to 334 kilograms in 1974.

The relatively small increase in cattle slaughter was reflected in growing herds—up 3 percent on January 1, 1975, over the previous January (table 5). Inventories of cattle (excluding cows)—largely calves and yearlings—increased 4 percent to 67.2 million head, but cow numbers were up only 1 percent. Hog inventories increased 3 percent and sheep and goats, 2 percent. The gains were almost entirely in herds on socialized farms. Private holdings of cows dropped by 300,000, but were partly offset by a 200,000-head

Table 4--Livestock products: Production of principle items, USSR,  
average 1966-70, annual 1966-74

Year	Meat						Milk	Wool 2/	Eggs
	Total	Beef & veal	Pork 1/ lamb&goat	mutton, lamb&goat	Poultry	Other			
1,000 tons									
1966.	10,704	4,377	4,465	933	745	184	75,992	371	31,672
1967.	11,515	5,081	4,456	1,028	764	186	79,920	394	33,921
1968.	11,648	5,513	4,079	1,029	817	210	82,295	415	35,679
1969.	11,770	5,569	4,094	969	866	272	81,540	390	37,190
1970.	12,278	5,393	4,543	1,002	1,071	269	83,016	419	40,740
1966-70 Av...:	11,583	5,187	4,327	992	853	224	80,553	398	35,840
1971.	13,272	5,536	5,277	996	1,183	280	83,183	429	45,100
1972.	13,633	5,722	5,445	923	1,237	306	83,181	420	47,910
1973.	13,527	5,873	5,081	954	1,295	324	88,300	433	51,154
1974.	14,500	6,400	5,500	1,000	1,400	200	91,800	461	55,000
1975.	...	...	...	...	...	...	...	...	...
1971-75 Av...:	...	...	...	...	...	...	...	...	...

1/ Including pork fat.  
2/ Greasy basis.

Table 5--Livestock: Numbers on January 1, USSR, 1966-75

Year	Cattle		Hogs		Sheep	Goats	Horses	Poultry
	Total	Cows 1/	Total	Sows				
	...	...	...	...	...	...	...	...
<u>Million head</u>								
1966 .....	93.4	39.3	59.6	4.11	129.8	5.6	8.0	490.7
1967 .....	97.1	40.3	58.0	3.81	135.5	5.6	8.0	516.3
1968 .....	97.2	40.5	50.9	3.36	138.5	5.6	8.0	528.4
1969 .....	95.7	40.1	49.0	3.30	140.6	5.6	8.0	546.9
1970 .....	95.2	39.6	56.1	3.62	130.7	5.1	7.5	590.3
1971 .....	99.2	39.8	67.5	4.04	138.0	5.4	7.4	652.7
1972 .....	102.4	40.0	71.4	4.02	139.9	5.4	7.3	686.5
1973 .....	104.0	40.6	66.6	3.95	139.1	5.6	7.1	700.0
1974 .....	106.3	41.5	70.0	4.03	142.6	5.9	6.8	747.7
1975 .....	109.1	41.9	72.2	2/4.10	2/145.1	2/6.0	2/6.7	2/790.0
	...	...	...	...	...	...	...	...

1/ Revised series, excludes cows placed on feed for slaughter.

2/ Estimates.

increase in other cattle. Private holdings of hogs were unchanged but those of sheep and goats were off 300,000 head.

Poultry inventories increased an estimated 6 percent during 1974. Numbers on collective and state farms on January 1, 1975, were up about 40 million or one-tenth from year-earlier levels (table 18). The number of birds dressed for meat in 1974 increased by roughly 80 million (assuming an average dressed weight of 1.3 kilograms).

Government procurement agencies absorbed through larger purchases the entire increase in meat production in 1974. Purchases increased from 9.5 to 10.6 million tons (carcass weight). Farm slaughter for own use or for sales on collective farm markets declined about 3 percent to 3.9 million tons, accounting for just over a fourth of total meat production. Industrial processing of meat, at 9.4 million tons, was up 12 percent, and retail sales in the state network, at 9.4 to 9.5 million tons, were up 7

percent. The relatively larger jump in industrial processing is related to the fall-off in meat processing in 1973 and to the fact that meat stocks were drawn down to help maintain supplies in domestic trade channels that year.

Consumption of meat reached 55 kilograms per capita in 1974, compared with 53 kilograms in 1973 (table 20). Demand for the increased supplies was ensured by continued increases in personal incomes (wages, excluding those on collective farms were up 4.3 percent); by the high income elasticity of demand for meat generally; and a possible repressed demand resulting from the tight supply in 1973. The meat consumption target for 1975 has been reduced to 56 kilograms from the original goal of 59 kilograms.

In 1974, the USSR made major purchases of meat from sources other than the centrally planned countries for the first time since late 1970. (A large part of the 1970 purchases was imported in 1971). Most purchases were reported in the third quarter,

when there was relative uncertainty about export markets. Announced purchases from Western Europe included 50,000 tons of EC frozen beef (bone-in) at \$940 per ton and small quantities of broilers. The Soviets purchased 36,000 tons of frozen mutton from New Zealand at roughly \$550-\$600 per ton. Of special interest was the conclusion of a long-term agreement with Argentina that called for the USSR to import 15,000 tons of Argentine beef in 1974; 20,000-30,000 tons in 1975; and 50,000-100,000 tons in 1977. The price on the initial 12,000 tons of Argentine beef (bone-in) was quoted at about \$924 per ton. The USSR reportedly also bought about 10,000 tons of beef from both Romania and Hungary, in addition to meat products and poultry, which have characterized previous trade with these countries. Negotiations with Australia reportedly have resulted in the purchase in early 1975 of about 40,000 tons of beef.

The Soviet meat purchases in 1974 from market economies probably brought imports of meat and products (including poultry) to about 200,000 tons, compared with 128,000 tons in 1973 (table 12). Continued deliveries from 1974 purchases should hold imports at these higher levels in 1975. Beef and mutton accounted for most of the increase in 1974 imports. Exports—primarily to Eastern Europe—probably did not increase from the 75,000 tons reported for 1973.

In November 1974, the Soviets announced an agreement to import 60,000 head of slaughter cattle from Hungary by the end of the year. Subsequently, Hungary contracted to deliver an additional 85,000 head during the first half of 1975. Such imports from Hungary have not been reported for previous years.

In recent years, the USSR has emerged as one of the leading exporters of lard. The principal destination is Cuba, although some lard has been exported to market economies. Exports slumped in 1973, but the recovery in hog slaughter in 1974 should have facilitated an improvement in exports.

### Milk and Dairy Products

Milk production continued to increase in 1974, rising 4 percent from 1973. Cow numbers increased only 1 percent during 1974, but average milk yields were up 2 percent. Most of the gain occurred during the first 6 months. Milk yields during July-December on collective and state farms were little changed from levels a year earlier. All but a fifth of the 3.5-million-ton increase in milk production was purchased by Government procurement agencies, but the slight increase in nonprocured supplies enabled an improvement in farm availabilities to pre-1972 levels. As with milk yields, the bulk of the gain in farm milk sales occurred during the first half of the year; July-December marketings were only slightly ahead of 1973 levels (table 17).

Advances in Soviet milk production in 1973 and 1974 have enabled a considerable increase in butter manufacture, lessening the tight situation that

occurred in early 1973. Higher output, capped by imports of 230,000 tons (primarily from the EC), enabled butter supplies in 1973 to increase more than a third over 1972. Sizable butter stocks probably were accumulated in 1973. Output of creamery butter in 1974 increased only 2 percent to 1,260,000 tons. Imports apparently returned to normal low levels. Per capita consumption in 1970 was 5.0 kilograms, but data have not been reported for recent years. Output in 1974 was sufficient for per capita consumption of about 5.4 kilograms. Butter manufacture during the second half of 1974 declined a little more than 1 percent from year-earlier levels, but stocks now provide a cushion against variations in output.

Butter manufacture still absorbs more than half of all Government purchases of milk and about a third of total production, but other uses have increased considerably in recent years. Factory output of cheese jumped 7 percent in 1974 to 572,000 tons. Consumption now has reached about 2.5 kilograms per capita.

Dry milk production was up 10 percent to 307,000 tons in 1974. (The distribution of dry milk production in 1973 was as follows: whole milk and cream—187,000 tons; nonfat dry—90,000 tons). Fluid milk marketed through Government channels increased to 9.3 million tons in 1973 from 7.7 million in 1970 and 5.3 million in 1965, but still represented only a tenth of total milk production. Data are not available for 1974.

In 1973, per capita consumption of all dairy products (including butter), in milk equivalent, only regained the 1970 level of 307 kilograms. The increase in milk supplies in 1974, especially for nonbutter uses, brought per capita consumption to a new record level of 312 kilograms. Consumption gains, however, have fallen far short of the originally planned increase from 307 kilograms in 1970 to 340 kilograms in 1975. The 1975 plan has been revised downward to 320 kilograms.

### Eggs

Egg production jumped more than 7 percent in 1974. Output has doubled in the past decade and the record is one of uninterrupted gains. Essentially, all of the increase in egg production has occurred on socialized farms, which now account for three-fifths of output, compared with a fourth just a decade ago. Egg production has been fostered both through increases in numbers of layers and sharp advances in average rates of lay on collective and state farms. The average number of layers on these farms has grown, reaching about 160 million in 1974, compared with 60 million in 1964. Over the same period, the average rate of lay jumped from 117 to more than 190 eggs. In 1974 average rates of lay on collective and state farms were up only 3 percent, but numbers of layers increased about 7 percent. In contrast to milk yields,

however, no slowdown in the rates of lay occurred during the second half of the year.

Government purchases of eggs from farms reached a record 30.9 billion in 1974. Steady marketing gains were recorded in both halves of the year (table 17). Although most increases in production are procured by the Government, farm retentions have uptrended gradually and also reached a record level in 1974.

Per capita consumption has grown steadily and hit 205 eggs in 1974. Demand apparently has been adequate to avoid surpluses, although the original planned goal for 1975 was only 192 eggs per capita. This goal has been revised upward to 207 eggs.

### **Wool and Hides**

Following several years of very little progress in the wool sector, output in 1974 jumped more than 6 percent to 461,000 tons (greasy basis). Sheep inventories were at a record level at the beginning of the year and advanced slightly during the year. An apparent shearing yield of 3.2 kilograms also equalled the previous record set in 1970. All but about 5 percent of wool production is marketed to the Government.

Soviet wool requirements have increased more rapidly than domestic production. Imports—especially of finer types—have grown relatively steadily, while exports have declined to low levels. Wool imports have originated primarily from Australia, New Zealand, and Argentina and have been a major foreign exchange expense. Imports of 96,000 tons (clean basis) in 1973 cost roughly \$350 million. Imports reportedly edged upward slightly to a record 97,000 tons in 1974.

In 1974, the USSR published for the first time data on hides and skins production. Production of large hides (primarily cattle) in 1973 held at 31.4 million—the same as in 1972. Production of smaller skins, excluding fur pelts, declined from 65.8 to 64.3 million. The uptrend in beef production during the past decade has resulted primarily from heavier slaughter weights, and thus, has contributed little to cattle hide output. Cattle hide production probably increased slightly in 1974.

The USSR has been an important market for U.S. cattle hides. Exports to the USSR during 1970-74 averaged 751,000 hides or \$8.7 million annually. Exports slumped to only \$1.1 million in 1973, but recovered to \$7.9 million in 1974. The United States generally has been the major source of Soviet cattle hide imports, and Argentina the second leading supplier.

### **Feed Situation**

Feeds available for the 1974/75 feeding season are down from 1973/74 levels, but still quite high by previous standards. Total feed units (exclusive of pastures) increased by roughly 20 percent during 1973/74, but are down roughly 5 percent for 1974/75. The livestock feed supply, per animal unit on collective and state farms during 1974/75, reportedly is down to 11.6 quintals, compared with 12.7 quintals in 1973/74.

Total supplies of concentrate feeds probably are up slightly for 1974/75. The use of grain for feed is estimated at 106 million tons, compared with 104 million tons in 1973/74 (table 1). Increased production of cottonseed meal should offset declines in sunflowerseed meal. Alfalfa meal production in 1974 increased to 3.1 million tons from 2.4 million in 1973. Mixed feed output in 1974 increased about 9 percent to more than 34 million tons (table 19).

A considerable drop occurred in supplies of roughages for the 1974/75 feeding season. Production of corn and green chop declined 20 percent to 225 million tons. The final hay outturn apparently was slightly less than in 1973, but haylage production increased from 50 to 59 million tons. Much of the gain in roughage feed units during the 1970's is a result of increased haylage production. In addition to the fall-off in silage production in 1974, the potato crop was extremely poor, with the result that only about half as many potatoes probably will be available for feeding during 1974/75 as in the previous year. The net result of these various changes is an estimated decline of about a tenth in roughage feed units. (David M. Schoonover)

## **USSR UNDERTAKES MORE VERTICAL INTEGRATION OF AGRICULTURE**

In efforts to improve vertical coordination of the food-and-fiber system, the USSR has begun moving toward more vertical integration of agricultural and industrial enterprises. One Soviet specialist has distinguished two principal types of movements toward vertical integration: (1) production cooperation between agricultural and industrial enterprises and (2) agro-industrial enterprises and associations.<sup>10</sup>

<sup>10</sup>Valovoy, D., "Formy Integratsii v Selskom Khozyaystve." *Ekonomika Selskovo Khozyaystava*. No. 9, 1974, pp. 13-22.

### **Types of Vertical Coordination**

The principal examples of production cooperation are the farms that have associated to promote an input or processing activity that would exceed the capacity of any single farm. Although combining nonfarm units within the association, the cooperation primarily has been farm-producer oriented, and these organizations commonly are referred to as intercollective farm, or simply, interfarm associations. In more recent years, state farms also have engaged in cooperation among themselves or with collective farms under the

auspices of interfarm associations. The number of interfarm associations at the beginning of 1973 was 5,068—up from 4,343 at the beginning of 1970. Since many collective farms participate in more than one association, the total number of collective farm shareholders far exceeded the number of collective farms, reaching 67,813. More than 5,000 state farm shareholders also participate in these associations.

One of the dominant, and oldest, undertakings of interfarm associations is cooperative construction work. During the 15 years from 1958 to 1973, the number of interfarm construction organizations grew from 961 to 2,797. In addition, at the beginning of 1973, there were 355 associations producing construction materials. About 60 percent of the total number of associations were engaged in cooperative activities dealing with construction.

The next major sphere of activities of interfarm associations is production of livestock and poultry. At the start of 1973, the following numbers of associations were engaged in this area: feed lots—350; poultry farms and hatcheries—596; feed plants—153; and artificial insemination stations—63. Only 29 associations were involved in cooperative processing of farm commodities. Many of the remaining associations were involved in forest management.

The development of cooperative arrangements among farms probably was given impetus at the December 1973 Plenum of the Central Committee of the Communist Party, when General-Secretary Brezhnev said:

"I think that the time has come to give interfarm enterprises, as we say, the green light, to render help from the state by means of technology and equipment to those collective and state farms that are ready to assign resources to this matter."

Turning to the second major Soviet type of vertical integration—the agro-industrial enterprises and associations—three categories have been distinguished: (1) "state farm-plants," (2) "agro-industrial kombinats" and (3) "agro-industrial associations." State farm-plants unite agricultural and industrial operations in one enterprise. They are involved in production and processing of sugarbeets, potatoes, grapes, and essential oils. More than half of the 665 state farms in the Ministry of Food Industry system are state farm-plants.

The agro-industrial kombinats are intermediate to the other two categories and are less clearly distinguished. A large share of the sugarbeet farms in the Soviet state farm system form part of agro-industrial kombinats. The typical kombinat includes the sugar plant, a sugar beet-growing and seed-raising state farm, and a farm fattening cattle on the beet pulp.

Agro-industrial associations join together several economically independent agro-industrial, agricultural, or industrial enterprises. Some associations are led by a head enterprise, others by an

independent management board. The agro-industrial associations have been engaged primarily in fruit-vegetable growing and canning, grape production and processing, and essential oils production and processing. The food industry system includes 50 agro-industrial associations. Most of these are located in the North Caucasus or in Moldavia. For example, the agro-industrial association "Donkonserv" in Rostov Oblast, which was organized in 1969, includes five state farm-plants, six state farms, four canneries, nine production-control laboratories, and four association-outlet retail stores.

Although increasing vertical intergation is evident, coordination of the developing agro-industrial system in the USSR has not been limited to this one approach. The dominant linkages in the food-and-fiber system are, on the product marketing side, contracts between farms and handlers or processors and, on the input side, allocation certificates distributed according to centrally approved plans. Except for a relatively small share of marketing of farm commodities produced on household plots, all the organizations involved are state-owned and are operated according to annual plans within the framework of 5-year plans.

### Coordination in the Livestock Sector

During the current FYP (1971-75), the development and coordination of the agro-industrial system has focused on the livestock sector. Large specialized livestock and poultry complexes have been constructed, interfarm associations have worked toward more specialization in livestock operations, and contracts have been established on a regular basis between farms and local plants processing milk or other products.

Impetus to the development of large specialized livestock complexes was given by Soviet Party and Government in April 1971, when degrees were issued on the industrial production of livestock products and on further development of industrialized production of eggs and poultry meat. The decrees called for Government construction during 1971-75 of 1,170 specialized meat and dairy complexes and the construction or expansion of 585 poultry "factories" (of the 585, apparently 394 represent expansion or reconstruction). The 1975 FYP goals for these specialized enterprises represented about 37 percent of the total production plan on eggs, 34 percent on poultry meat, 5 percent on other meat, and 2 percent on milk. These complexes do not include specialized collective farm operations. About 1,500 large collective farm and intercollective farm complexes also were scheduled to be built during 1971-75.

The plans for 1,170 specialized Government livestock complexes to be constructed during 1971-75 included 307 for beef, 228 for pork, and 635 for milk. The beef complexes are to include 47 with an annual capacity of 10,000 head each, 20 mechanized feed lots with capacities of 20,000 to 30,000 head each, and 240

beef state farms fattening their own calves from 600 cows each. Hog complexes with four different sizes of annual fattening capacities are being constructed: 12,000; 24,000; 54,000 and 108,000 head. The largest complexes reportedly can provide the needs of a city of almost a half million people. The 635 dairy farms are to include 558 state farms with 800-cow capacities and 77 state farms with 1,200-cow capacities. Egg poultry factories range from 50,000 to a million layers and broilers from 1 to 8 million birds. Common sizes apparently are 200,000 to 400,000 layers or 3 million broilers.

Several large livestock complexes were brought into operation during 1974. These include 6 of the 108,000-head hog complexes and 4 of the 10,000 head beef complexes. The total hog capacity in specialized operations was increased by 1.1 million head. In addition, poultry capacity was increased by 11 million layers and 26 million broilers. As of the fall of 1974, the Government had constructed 103 livestock complexes, including 25 for hogs, 23 for beef, and 55 for milk. From the beginning of the FYP, detailed plans had been completed or construction begun on 453 complexes. In addition, construction of 103 interfarm complexes has taken place.

Large hog complexes are to be completed in 1975 for 1.4 million head, which will bring total FYP additions to 3.6 million head versus 5.9 million initially

planned. Capacity in poultry factories will be expanded by 7.7 million layers and 20.6 million broilers. For the FYP, total expansion will reach 41.4 million layers, compared with the original plan of 48.1 million, and 105.4 million broilers, compared with 193.4 million.

The specialized livestock complexes are involved in a variety of forms of vertical and horizontal coordination. The Tambov Agro-Industrial Association in Tambov Rayon, for example, includes 11 collective farms, 15 state farms, and several complexes with overall capacity for fattening 20,000 cattle and 25,000 hogs. The Association also includes an alfalfa meal plant, a meat-and-bone meal plant, a mixed feed plant, and one state farm specializing in forage crop production. As of mid-1974, a meat processing plant also was scheduled to be put into operation. Many of the interfarm associations integrate a feed lot and mixed-feed plant with dairy farms, which supply feeder calves, and other farms specializing in feed production. Initiatives in the development of livestock in the USSR have resulted in a diverse, and sometimes confusing, pattern of organization, but the trend clearly seems to lead toward large, integrated operations and toward cooperative associations of single farms integrated with an input and/or processing facility. (David M. Schoonover)

## STRONG GROWTH IN AGRICULTURAL INVESTMENTS

### Aggregate Investments

Capital investment in agriculture in 1974 by Government agencies and collective farms totaled 28.4 billion rubles, a record 27 percent of total capital investments for the whole economy. This investment in agriculture was 2 percent above plan and about a tenth higher than in 1973. It consisted of 18.4 billion rubles from Government agencies—as planned—and 10 billion from collective farms, compared with 16.4 billion and 9.4 billion rubles, respectively, in 1973. Of total capital investments made in agriculture in 1974, only the amount allocated for land improvement has been reported separately thus far. Unquestionably, a large share went for construction and expansion of housing and feeding facilities for livestock, and also for construction and improvement of storage facilities for farm products and fertilizer.

In 1975, the Soviets plan to increase capital investments (by Government agencies and collective farms) to 31 billion rubles. The largest shares of this investment are allocated to machinery purchases, construction of livestock facilities, and land improvement. Among the investments in livestock facilities, 1 billion rubles are planned for construction of large livestock complexes and farm automation, and about 700 million rubles for construction of new large integrated poultry operations. The Government budget for 1975 allocates 8.2 billion rubles—up 21

percent—for financing of land improvement and reclamation. This includes about 6 billion rubles of new capital investment for land improvement construction work.

Total investments in agriculture during 1971-75 by both Government agencies and collective farms are expected to exceed the planned level of 128.6 billion rubles. Actual investments during the previous 5-year plan totaled 82.2 billion rubles.

### Machinery

Machine deliveries to agriculture in 1974 were generally up, although all plans were not met. A total of 347,000 tractors were supplied, 8 percent more than in 1973 but 3 percent below plan. Deliveries of trucks (including specialized vehicles) totaled 250,000 as planned—an increase of 11 percent over 1973. Deliveries of grain combines, however, continued to be disappointing, especially following the sharp 12-percent decline in 1973. The 83,000 grain combines supplied in 1974 were only about 1,000 more than in 1973, 16 percent below plan, and the second lowest deliveries since 1966 (table 6).

Planned 1975 and total 1971-75 deliveries of tractors and trucks have remained basically the same as called for in the original 1971-75 plan. Current indications are that fulfillment of these plans is

Table 6--Tractors, trucks, and grain combines: Inventories and deliveries, USSR, average 1956-75, annual 1966-74 1/

Year	Tractors		Trucks 2/		Grain combines	
	Inven-	De-	Inven-	De-	Inven-	De-
	tories	liveries	tories	liveries	tories	liveries
<u>Thousands</u>						
1956-60 average ...	994	149	700	96	470	76
1961-65 average ...	1,329	218	865	71	509	77
1966 .....	1,660	276	1,017	106	531	86
1967 .....	1,739	287	1,054	108	553	96
1968 .....	1,821	290	1,097	114	581	97
1969 .....	1,908	304	1,153	126	605	92
1970 .....	1,977	309	1,206	126	623	97
1966-70 average :	1,821	293	1,105	116	578	94
1971 .....	2,046	313	4/1,168	137	639	99
1972 .....	2,112	313	4/1,232	153	656	93
1973 .....	2,198	323	4/1,276	188	658	82
1974 .....	2,289	347	4/1,315	NA	665	83
1975 .....						
1971-75 average :						
1975 (Plan) .....	2,520	381	1,650	---	---	---
1971-75 average (Plan) .....	---	340	---	5/185	---	6/109

NA = not available.

1/ Inventories are for end of year.

2/ Including tank trucks.

3/ Excluding specialized vehicles.

4/ Excluding nonfarm trucks of interfarm organizations, which numbered 70,000 in 1970.

5/ Excludes an estimated 35,000 specialized vehicles.

6/ Original plan.

likely. On the other hand, it is believed that some changes have been made in the original plan for grain combine deliveries. In a December 1974 speech on the 1975 plan for agriculture, the Chairman of the State Planning Committee reported that, in general, deliveries of machinery to agriculture would conform to the original 1971-75 plan—with the exception of grain combines and tractor trailers. It was explained

that in both instances, delivery plans for 1974 failed to be met because of defaults in implementing and expanding production capacities as planned.

Overall investment during the current 5-year plan is expected to reach more than 35 billion rubles—up a reported 52 percent from the previous 5-year plan period (1966-70) and more than a fourth of total agricultural investments. Despite shortfalls in grain

combines and trailer trucks, aggregate investment in machinery is anticipated to be on target.

### Land Improvement

Last year, of total capital investments in agriculture, 5.8 billion rubles went for land improvement, 11 percent more than in 1973. The Government budget for 1975 includes 6 billion rubles for land improvement construction. The overall plan for a 21.3-percent increase in the budget suggests that the total investment plan for land improvement in 1975 can reach 7 billion rubles.

A million hectares of newly irrigated land reportedly were put into use in 1974—slightly more than in 1973 and 16 percent above the amount planned. Newly irrigated areas included more than 500,000 hectares of improved pastures. These, however, were not net additions since some irrigated areas go out of use each year because of deterioration of irrigation system or salinity problems. Each year, 3 to 4 percent of the newly irrigated land is left idle so that facilities can be repaired and other changes made.<sup>11</sup>

During 1974, construction was completed on the second section of the Grand Stavropol Canal in the North Caucasus, the foundation for the Nikolaev Hydroelectric Power Station on the Don River, and the Ural-Kushum irrigation system in Kazakhstan. Also in 1974, the Soviets made detailed plans for construction of the Volga-Ural Canal, which according to the Soviets will be the largest irrigation system in Europe. The new Canal is planned to be completed in 1985 and is expected to irrigate 2.5 million hectares of plowland and supply water to about 8.5 million hectares of pastureland.

An additional 985,000 hectares of new irrigated land are planned to be added in 1975. This reportedly will bring total additions during 1971-75 to 3.7 million hectares—500,000 hectares more than planned for this ninth 5-year plan, and close to 2 million hectares more than added during the previous 5-year plan. The Kransnodar Reservoir in the North Caucasus is scheduled for completion in 1975. Irrigation construction work in the newly developed cotton area in the Karshi Steppe in Uzbekistan will continue, as well as the irrigation of improved pastures in the northern part of European USSR.

Drainage was carried out on more than 800,000 hectares of wet land in 1974, about 100,000 hectares less than in 1973, and a little over 140,000 hectares less than planned. Again, the amount of land drained in 1974 was not a net addition, since some drainage systems go out of use for lack of proper maintenance. In addition, as in the case of irrigated land, each year 6 to 7 percent of the newly drained land is left idle in order to make repairs and other changes. In 1975, plans call for draining more than a million hectares

of wet land. If this goal is achieved, a total of 4.4 million hectares reportedly will have been drained during 1971-75, compared with 3.8 million during 1966-70 and 5 million hectares planned.

### Grain Storage

The need for adequate grain storage facilities in the USSR undoubtedly has become more acute in recent years, especially following the record 1973 and near-record 1974 grain harvests. Because of insufficient facilities to store the 1973 grain output (which greatly exceeded the planned level for the first time), large quantities of the grain—much of which was harvested under wet conditions—were stored on the ground and resulted in heavy losses and deterioration in quality.

Soviet off-farm storage facilities, as of January 1, 1974, reportedly had a 126-million-ton capacity for grains and oilseeds, with grain elevators accounting for 28 million tons of the capacity. State and collective farms had storage facilities for an estimated 100 million tons. With grain production at 222.5 million tons in 1973, and oilseed production at more than 8 million tons, it is evident that existing storage facilities were far short of requirements. It is estimated that, as of January 1, 1975, total off-farm storage capacity probably reached a little over 130 million tons, including grain elevator capacity of roughly 30 million tons. However, considering the 1974 near-record grain crop of 196 million tons and over 7 million tons of oilseeds, it is apparent that storage problems may still have persisted. Furthermore, these existing facilities must also be used to store carryover stocks. Also, some storage facilities probably operate below capacity, since they may be closed for needed repairs.

Thus, recognizing the necessity for further expansion in storage facilities, the Soviets decreed in January 1975 to invest 3.5 billion rubles during the next 5-year plan period (1976-80) for 40 million tons of new off-farm storage facilities, most of which—34 million tons—will be for new grain elevator capacity. If achieved, and if previously existing facilities are maintained, total off-farm storage capacity of all types at the end of 1980 could total roughly 180 million tons, with grain elevator capacity accounting for about 70 million tons.

Of the 40-million-ton new off-farm storage capacity planned for 1976-80, more than a fourth is to be constructed in the Ukraine and in Kazakhstan, two of the major grain-producing regions in the USSR. Capacities in the Ukraine are to be expanded by 6.4 million tons and those in Kazakhstan, by 5.2 million tons.

The expansion rate for new off-farm grain elevator capacity has grown markedly in the past several years. During 1961-65, 3.5 million tons of capacity were added; during 1966-70, 8.7 million tons; and during 1971-74, 12.4 million tons. Thus, from 1961 to

<sup>11</sup> *Vestnik Statistiki*, #12, 1973, page 11.

1974, gross additions to elevator capacity totaled about 25 million tons. An additional elevator

capacity of 5 million tons is planned for 1975. (Angel O. Byrne)

## FERTILIZER USE CONTINUES UPWARD

Fertilizer deliveries to agriculture in 1974 totaled 66 million tons (including feed phosphates), 6 million tons more than in 1973 but 700,000 tons less than planned for 1974. Deliveries reached about 15 million tons in terms of nutrients. Aggregate fertilizer production in 1974 reached 80.3 million tons (standard gross weight), about the planned level. Agriculture's share of production came to 82 percent, compared with 83 percent in 1973. In 1975, agriculture is to be supplied about 75 million tons of fertilizers, 9 million more than in 1974.

The composition of the fertilizers being delivered to agriculture is deviating somewhat from that originally planned. In terms of nutrients, nitrogen accounted for 45 percent, phosphates 30 percent, and potash 25 percent in 1974. However, according to the original 1971-75 plan, nitrogen fertilizer deliveries in 1975 were to account for only 38 percent of the total planned fertilizer nutrient deliveries, and phosphates, for 28 percent. Potash deliveries, however, were to be 35 percent of the total.

The composition of mineral fertilizer deliveries to agriculture has changed considerably since 1963, with nitrogen showing a higher rate of increase than phosphates and potash (fig. 3). During 1963-73, nitrogen deliveries increased almost five-fold, potash four-fold, and phosphates three-fold.

The below-plan potash deliveries to agriculture in 1974 indicates that the production capacity for potash has not been increased as expected. Shortfalls in potash deliveries, however, are being compensated for by other nutrients, primarily nitrogen.

In 1974, capacity for producing an additional 7 million tons of mineral fertilizers annually was

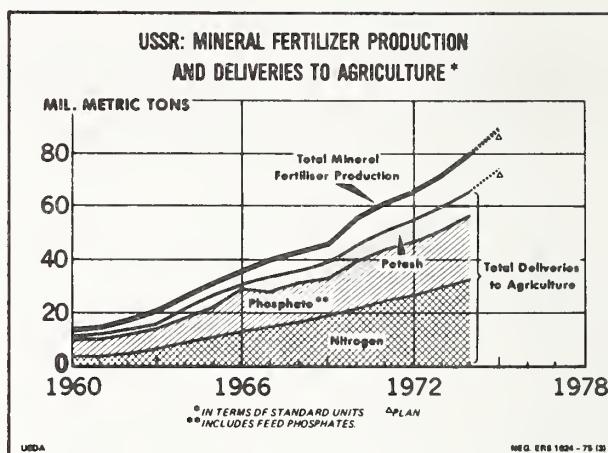


Figure 3

added, compared with 8.9 million tons in 1973. Thus, during 1971-74, new production capacity totaled 26.3 million tons. The 1975 plan calls for an additional 10.3 million tons. If fulfilled, this would bring total new additions during 1971-75 to 36.6 million tons—1 million below the planned level of expansion but over 3 million tons more than during 1966-70.

During 1971-74, total mineral fertilizer supplied to agriculture amounted to 231 million tons, compared with a total of 185 million tons delivered in the 1966-70 FYP period. If the 1975 plan is realized, total mineral fertilizer deliveries during the current 5-year plan would reach about 306 million tons, slightly more than planned. (Angel O. Byrne)

## DEVELOPMENT OF THE NON-BLACK SOIL ZONE

In April 1974, the Soviet Government established long-range plans for further development of agriculture in the Non-Black Soil Zone of the RSFSR. This major new agricultural project is to be completed by 1990.

The Non-Black Soil Zone, which encompasses 29 oblasts and other administrative subdivisions in the northern part of European USSR (excluding the Baltics), has a population of 58 million people—44 percent of the population in the RSFSR and 25 percent of the total USSR population. The Zone contains over 9,500 state and collective farms covering a total of 52 million hectares of agricultural land—close to 9 percent of total agricultural land in the country. It includes 32 million hectares of arable

land or 14 percent of total arable land in the country. The area sown to crops—mainly grain, forage crops, fiber flax, potatoes, and vegetables—is about 13 percent of the total seeded in the country. The Zone produces about a sixth of the USSR's gross agricultural output.

The Non-Black Soil Zone contains 11 percent of the total Soviet grain area, and grain production there is about a tenth of the country's total output. Production of rye and oats account for about a third and a fourth, respectively, of total Soviet output of these grains. Wheat production, on the other hand, is only 5 percent of the country's total wheat output. Barley production, the main feedgrain in the Zone, is about a tenth of total Soviet output. During the next

several years of developing grain output in the Zone, special focus will be placed on expanding rye as a major grain crop. The most rapidly expanding grain in the area, however, is barley. The potential growth of total grain production for the Non-Black Soil Zone is envisaged by Soviet officials to reach 30 million tons in 1980 and 43 million tons in 1990, which compares with a total output of about 18 million tons in recent years.

Fiber flax, potatoes, and vegetables are the more important nongrain crops in the Zone. In 1973, it produced 40 percent of total fiber flax output in the country, 31 percent of all potatoes, and 20 percent of total vegetables. During 1976-80, the Soviets plan to raise potato production by 6 percent, vegetables by 25 percent, and fiber flax by 45 percent—all above 1973 output levels.

The Non-Black Soil Zone is a major animal husbandry region in the USSR. In 1973, 16 percent of the country's total meat output (live weight), 21 percent of total milk, and over 22 percent of total egg output were produced in the Zone. As part of the program for developing dairy and meat production as the most important sector of agriculture in the Zone, emphasis will be placed on increasing the area and production of clover as a major source of protein for livestock. Crop production geared to livestock production will be compulsory for every farm in the Zone. Furthermore, a large number of livestock complexes will be constructed for the production of milk, beef, pork, lamb, eggs, and broilers. During 1976-80, 3 million rubles will be invested for construction of these complexes. The Soviets plan that by 1980, compared to 1973, meat output (live weight) will be increased by 38 percent, milk by 27 percent, and eggs by 37 percent.

To effectively carry out the massive new agricultural project in the Non-Black Soil Zone, the Soviets plan to make large investments in the region in the next 15 years. During 1976-80 alone, 35 billion rubles will be allocated for capital investment—1.8 times the amount spent in 1971-75. In addition, 8 billion rubles will be allocated for developing the meat, dairy, food, and light industries. Inputs to be delivered to the Zone during 1976-80 will include a

total of 120 million tons of mineral fertilizers (almost twice as much as planned for 1971-75), 380,000 tractors; 94,000 grain combines, and 230,000 trucks.

More than 5 billion rubles are planned during 1976-80 for land improvement work in the Non-Black Soil Zone. According to the Soviets, more than one-third of the agricultural land in the Zone needs improvement. Thus, a very important aspect of the new project will entail large-scale land improvement work, mostly drainage and liming.

Between 1975 and 1990, the Soviets plan to drain 9 to 10 million hectares of land (including 7 to 8 million hectares using drainage tile), to irrigate about 2 to 2.5 million hectares for pastureland and for developing vegetable growing near cities and industrial centers, and to carry out brush clearing and renovation on 8 to 10 million hectares of land which do not require draining. An important part of the project will be devoted to liming of acid soils on area of 22 million hectares. To emphasize the importance of this new land improvement project, the Soviets have organized a new Main Administration for Land Improvement in the Non-Black Soil Zone of the RSFSR, directly subordinate to the Council of Ministers, RSFSR, which will direct all administrative and operational aspects of the project. In 1974, a total of 320,000 hectares of improved land was brought into production in the Zone. The Government budget for 1975 includes 3.6 billion rubles for financing all aspects of land improvement and other construction.

For upgrading living conditions in the Zone, 4 to 5 billion rubles will be invested during 1976-80 to construct new housing, schools, hospitals, cultural amenities, roads, more modern telephone and electric power facilities, and other needed services. It is planned to resettle some 170,000 families from small villages into large state and collective farm centers. Grants, which have been established for these families, will entail 15-year loans of up to 3,500 rubles for building homes—35 percent of this loan is to be provided by the Government. Furthermore, large student construction detachments will be sent into the Zone during the next several years to help carry out the massive work planned. (Angel O. Byrne)

## OUTLOOK

Soviet statements about planned levels of agricultural output in 1975 indicate that strong renewed growth is expected. The current 5-year plan, covering 1971-75, originally called for a 21.7-percent increase, on the average, over the previous 5-year average output. This goal is no longer within reach, and the new 1971-75 goal of a 16.5-percent increase, on the average, still will require a major surge in 1975. Planned gross agricultural output for 1975 is 104.5

billion rubles—up 11 percent from the 1974 level and 7 percent from the 1973 record. The 16.5-percent increase is not unrealistic, but it would reflect above average growth. More than anything else, the outlook for 1975 depends on the weather, and much better than average weather would probably be necessary to attain the planned performance. Agricultural production goals for 1975 and planned average 1971-75 production levels are shown in table 7.

Table 7--Farm product goals: Major crops and livestock products, USSR  
1975 and 1971-75 average goals compared with 1974 **actual**

Products	1974 actual 1/	1975		1971-75 average	
		Original goal	Revised goal	Original goal	Expected fulfillment 2/
<u>Million tons</u>					
Grain .....	195.6	214.0	215.7	195.0	196.6
Cotton, raw .....	8.4	7.2	7.7	6.8	7.6
Sugarbeets .....	76.4	92.4	94.0	87.4	80.7
Sunflowerseed .....	6.8	7.4	7.4	7.0	6.5
Potatoes .....	80.7	111.2	109.8	105.7	93.8
Vegetables .....	23.1	27.2	27.4	24.7	23.4
Meat, slaughter weight .....	14.5	16.0	15.3	14.3	14.0
Milk .....	91.8	100.2	94.8	92.3	88.3
<u>Billion eggs</u>					
Eggs .....	55.0	52.7	55.8	46.7	51.0
<u>1,000 tons</u>					
Wool .....	461	500	472	464	443

1/ Some preliminary data revised to conform to 1974 annual plan fulfillment report data.  
2/ Assumes attainment of revised 1975 goal.

Source: Ekonomika Selskovo Khozyaystva, No. 2, 1975, p. 5.

## Grain

There is a strong chance that the USSR still could meet the original FYP goal on the average level of grain production during 1971-75. The target of 195 million tons would require production of about 207.5 million tons in 1975. During the FYP, however, grain yields have increased less than initially expected by Soviet planners, and the drive to meet output targets has required larger grain areas than were planned.

The actual grain output target for 1975 of 215.7 million tons is based on an area of 130 million hectares and yields of 16.6 quintals. The USDA pre-season projection of 1975 Soviet grain output is 210 million tons. This projection is based largely on 20-year yield trends for individual grains and an estimated area of 128 million hectares—only slightly up from 1974. If the USSR succeeds in expanding grain area for harvest to at least 130 million hectares, then projected output would approach the target. Out of total projected production, wheat accounts for about 95 million tons, major coarse grains for 100 million tons, and other grains and pulses for 15 million tons. The projected production would represent a good recovery for the wheat crop and a record coarse grain output.

Actual results, of course, can be expected to diverge substantially from the projection, depending largely on weather. Assuming the area estimates are relatively accurate, the changes still are about one in three that the total grain crop will be at least 15 million tons more or less than projected.

Total domestic requirements for grain in the USSR during 1975/76 also are projected at about 210 million tons, compared with an estimated 205 million tons during 1974/75. The projected increase in utilization is attributed to growing use of grain for feed, with small increases or slight declines expected for other uses of grain. The 1975 plan calls for Government purchases from farms of 87.5 million tons of grain. If production and purchase plans are met, farm supplies, exclusive of mixed feed deliveries, will increase 5 to 6 million tons above 1974 availabilities.

The projected grain balance suggests little net trade in grain during 1975/76, with imports required only to offset usual exports of roughly 5 million tons. Some additional imports are possible, however, in view of the low stocks situation that is believed to exist. Although not all of the possible weather-related deviations from projected production would necessarily be covered by foreign trade, it seems likely that such possible deviations would, in fact, strongly affect trade. The extent to which domestic production shortfalls would be covered by imports would also depend on world grain supplies relative to demand. Larger levels of output also could be used, of course, to rebuild stocks.

The prospects for the winter grain crops, as of mid-March, were relatively favorable. Reported area seeded on collective and state farms in the fall of 1974 was 33.7 million hectares. This area is about a

million hectares less than planned and about 1.5 million less than sown a year earlier. In the principal winter wheat zone, growth continued late because of mild fall weather. Despite little snow cover in this area through the end of January, crop conditions were good, as temperatures held well above normal. An onset of colder temperatures during the first 10 days of February was accompanied by snow, and reportedly resulted in little damage to the winter grain crop. Milder temperatures had returned by mid-February. Losses typically result in expanded seedings of spring grains. Little can be written as of mid-March about prospects for the more important spring grain crop. Precipitation in large parts of the Siberian grain area was much less than normal during the fall but was above average in January-February 1975. Thus, rainfall this spring will be very important in determining the moisture situation for the 1975 crop.

## Other Crops

Prospects for attainment of original FYP 1975 targets on the major industrial crops now differ sharply by crop. Cotton production in 1974 was already about 1.2 million tons (seed basis) above the original 1975 goal. The revised 1975 target is below 1974 output, but cotton production typically has exceeded stated plans. The target for sunflowerseed output, at about 7.4 million tons, is not unreasonable, although it probably will require better than average weather and would represent a 9-percent increase over 1974. Plans call for Government purchases of 5.9 million tons of sunflowerseeds and 1.1 million tons of other oilseeds (excluding fiber crop seeds.) Although a shortfall is expected in availabilities of "other oilseeds", it is expected that this will be offset by an over-plan amount of cottonseed. The sugarbeet production target for 1975 has been raised upward slightly to 94 million tons. Even the original sugarbeet goals—92.4 million tons of output and 87 million tons of Government purchases—now seem very optimistic, unless area is expanded considerably in 1975 or weather is extremely favorable. A crop as large as the targeted level for 1975 was produced once before—in 1968—but most recent years have been characterized by results that were far below planned output levels.

Soviet plans on production of potato and vegetable crops in 1975 also seem ambitious, although not unattainable. Planned potato production of about 110 million tons is nearly 30 million tons larger than the poor 1974 crop, and slightly above the record 1973 harvest. The vegetable target is up about 6 percent from the 1973 record and 18 percent from 1974.

Major shortfalls are likely in forage crop production. Few 1975 plans by individual crops are available, but the general picture is relatively pessimistic. Compared with 1970, the 1975 feed availabilities of major roughage crops were planned

to increase the following percentages: silage—72, hay and haylage—65, and green chop—48. Progress has been made in increasing forage crop output, but as of 1974 it falls far short of growing at the rates specified in feed plans.

### Livestock

Despite the severe setback in feed production in 1972 and the lesser shortfall in 1974, the Soviets have continued to emphasize expanded livestock production. Inventories of major categories of livestock were at record levels on January 1, 1975. Quantities of concentrates fed—in total and per animal units—have increased over the current 5-year plan period. Output of livestock products in 1975, on a per capita basis as well as in total, will be sharply higher than the 1970 base levels.

Mixed feed output in 1975 is planned at 37.4 million tons—up from 34.4 million tons in 1974. Planned availabilities of important feed ingredients are (1,000 tons): fish meal—590; meat-bone meat—485; feed yeasts—699. Output of dehydrated alfalfa meal is scheduled to reach 4.2 million tons.

Current feed supplies and livestock holdings probably are adequate for attainment of the revised meat output target for 1975. Compared with 1974, a 6-percent increase in meat production would be required. The 1975 plan for Government purchase of livestock (live weight) has been revised downward from 17.7 to 16.9 million tons, now requiring an increase of 4 percent over 1974.

The new milk production goal for 1975 is 3 percent above the 1974 level. The outlook for the first half of 1975 is not encouraging. Milk yields on collective and state farms during the latter half of 1974 failed to grow from year-earlier levels, apparently because of poorer feed supplies, and there seems little reason to expect performance to be boosted in relative terms before cows are on pasture in 1975. Unless weather

effects on pastures and forage crops are at least average in 1975, growth in milk production may be only slight. The Government purchase goal for 1975 has been revised downward from 60.1 to 57.2 million tons.

The wool production target for 1975 also has been reduced. Both sheep numbers and the rate of shearing per sheep would have to be sustained at record levels, however, for attainment of the revised target. Procurement plans for 1975 have been cut about 4 percent, less than the reduction in production plans.

In terms of meeting original FYP goals, the exception to the otherwise gloomy picture in the livestock area is egg production. Output of 55 billion eggs in 1974 was about 5 percent above the original 1975 plan. The 1975 plan has been revised upward, but still appears conservative. Performance continued strong during the second half of 1974, suggesting that the 7-percent gain registered in 1974 perhaps could be matched again in 1975. The Government purchase plan also has been revised upward—from 28.7 to 31.7 billion eggs. Prospects are good that the plan will be exceeded.

Livestock production plans for 1975, however, are down, with the exception of eggs, from original FYP targets. Most of the revised plans seem attainable if pasture and crop conditions are at least average in 1975. The reduced goals seem to represent more realistic expectations of performance from the current livestock herd levels and feed supplies, rather than an intentional pullback from the livestock program. As a consequence of production plan changes, consumption goals also have been altered. Planned 1975 meat consumption per capita now is 56 kilograms versus 59 in the FYP original targets. Planned milk consumption now is 320 kilograms versus 340 originally, but planned egg consumption has been increased from 192 to 207. (**David M. Schoonover**)

Table 8--Grain: Area, yield, and production, USSR, average 1966-70, annual 1966-74

Year	Wheat			Rye	Barley	Oats	Corn	Others 1/	Total grain						
	Winter	Spring	Total												
<u>Area</u>															
<u>1,000 hectares</u>															
1966.....	19,803	50,155	69,958	13,583	19,396	7,162	3,229	11,479	124,807						
1967.....	19,708	47,318	67,026	12,418	19,125	8,688	3,485	11,430	122,172						
1968.....	18,972	48,259	67,231	12,269	19,353	8,998	3,350	10,271	121,472						
1969.....	14,414	52,012	66,426	9,237	22,484	9,300	4,167	11,089	122,703						
1970.....	18,505	46,725	65,230	10,020	21,297	9,250	3,353	10,111	119,261						
1966-70 av....	18,280	48,894	67,174	11,505	20,331	8,680	3,517	10,876	122,083						
1971.....	20,694	43,341	64,035	9,507	21,600	9,600	3,332	9,863	117,937						
1972.....	14,979	43,513	58,492	8,160	27,269	11,358	4,012	10,867	120,158						
1973.....	18,340	44,815	63,155	7,012	29,387	11,887	4,031	11,266	126,738						
1974.....	18,613	41,071	59,684	9,810	31,081	11,567	3,955	11,100	127,197						
1975.....															
1971-75 av....															
<u>Yield 2/</u>															
<u>Quintals per hectare</u>															
1966.....	20.4	12.0	14.4	9.7	14.4	12.8	26.1	10.5	13.7						
1967.....	17.8	8.9	11.5	10.5	12.9	13.3	26.3	10.6	12.1						
1968.....	18.3	12.2	13.9	11.5	14.9	12.9	26.4	12.3	14.0						
1969.....	18.9	10.1	12.0	11.9	14.5	14.0	28.7	12.5	13.2						
1970.....	22.8	12.3	15.3	13.0	17.9	15.3	28.0	12.2	15.6						
1966-70 av....	19.6	11.1	13.4	11.2	15.0	13.8	27.2	11.6	13.7						
1971.....	23.1	11.8	15.4	13.5	16.0	15.2	25.7	12.0	15.4						
1972.....	19.6	13.0	14.7	11.8	13.5	12.4	24.4	10.9	14.0						
1973.....	27.0	13.5	17.4	15.3	18.7	14.7	32.8	14.4	17.6						
1974.....	24.0	9.5	14.0	15.5	17.4	13.2	30.6	13.5	15.4						
1975.....															
1971-75 av....															
<u>Production</u>															
<u>1,000 tons</u>															
1966.....	40,303	60,196	100,499	13,146	27,879	9,199	8,416	12,045	171,184						
1967.....	35,142	42,277	77,419	12,986	24,662	11,581	9,163	12,076	147,887						
1968.....	34,647	58,746	93,393	14,120	28,904	11,639	8,828	12,656	169,540						
1969.....	27,210	52,707	79,917	10,945	32,652	13,070	11,954	13,864	162,402						
1970.....	42,140	57,594	99,734	12,972	38,172	14,203	9,428	12,286	186,795						
1966-70 av....	35,888	54,304	90,192	12,834	30,454	11,938	9,558	12,585	167,562						
1971.....	47,803	51,142	98,760	12,787	34,600	14,600	8,597	11,831	181,175						
1972.....	29,380	56,613	85,993	9,633	36,813	14,095	9,830	11,874	168,238						
1973.....	49,435	60,349	109,784	10,759	55,044	17,516	13,216	16,211	222,530						
1974.....	44,698	39,151	83,849	15,218	54,161	15,257	12,142	14,962	195,589						
1975.....															
1971-75 av....															

1/ Includes millet, buckwheat, rice, pulses, and miscellaneous grains.

2/ Calculated from area and production data when official yield data were not available.

Table 9--Selected nongrain crops: Area, yield, and production, USSR,  
average 1966-70, annual 1966-74

Year	Cotton 1/	Sugar beets	Sunflowers	Fiber flax	Potatoes	Vegetables		
<u>Area</u>								
			<u>1,000 hectares</u>					
1966.....	2,463	3,803	5,004	1,403	8,392	1,400		
1967.....	2,442	3,797	4,767	1,375	8,331	1,429		
1968.....	2,445	3,560	4,863	1,334	8,301	1,425		
1969.....	2,540	3,384	4,772	1,309	8,100	1,447		
1970.....	2,746	3,368	4,777	1,284	8,064	1,499		
1966-70 av.....	2,527	3,582	4,837	1,341	8,238	1,440		
1971.....	2,770	3,321	4,498	1,244	7,894	1,519		
1972.....	2,735	3,486	4,394	1,251	7,960	1,578		
1973.....	2,742	3,553	4,745	1,248	8,017	1,621		
1974.....	2,880	3,610	4,686	1,210	7,983	1,635		
1975.....								
1971-75 av.....								
<u>Yield</u>								
			<u>Quintals per hectare</u>					
1966.....	24.3	195	12.2	3.3	105	125		
1967.....	24.5	230	13.8	3.5	115	141		
1968.....	24.3	266	13.7	3.0	123	131		
1969.....	22.5	211	13.3	3.7	113	126		
1970.....	25.1	237	12.8	3.6	120	138		
1966-70 av.....	24.1	228	13.2	3.4	115	132		
1971.....	25.6	219	12.6	3.9	117	132		
1972.....	26.7	223	11.4	3.6	98	122		
1973.....	28.0	245	15.5	3.6	135	155		
1974.....	29.2	212	14.4	3.4	101	140		
1975.....								
1971-75 av.....								
<u>Production</u>								
			<u>1,000 tons</u>					
1966.....	5,981	74,037	6,150	461	87,853	17,857		
1967.....	5,970	87,111	6,608	485	95,464	20,534		
1968.....	5,945	94,340	6,685	402	102,184	19,011		
1969.....	5,708	71,158	6,358	487	91,779	18,745		
1970.....	6,890	78,942	6,144	456	96,783	21,212		
1966-70 av.....	6,099	81,118	6,389	458	94,813	19,472		
1971.....	7,101	72,185	5,663	486	92,655	20,840		
1972.....	7,296	76,424	5,048	456	78,329	19,941		
1973.....	7,664	87,047	7,385	446	108,201	25,927		
1974.....	8,408	76,391	6,761	406	80,683	23,146		
1975.....								
1971-75 av.....								

1/ Seed cotton.

Table 10--Oilseed crops: Area, yield, and production, USSR, average 1966-70, annual 1971-73

Year	Sun- flower seed	Flax seed	Caster bean	Soybeans	Mustard seed	Camellina seed	Winter rape	Safflower seed	Total oilseeds
	1,000 hectares								
<u>Area</u>									
1966-70 av.	4,837	248	177	854	235	NA	NA	NA	NA
1971	4,498	227	196	868	259	NA	NA	NA	NA
1972	4,394	245	210	905	249	NA	NA	NA	6,039
1973	4,745	222	206	838	246	NA	NA	NA	6,293
<u>Yield</u>									
1966-70 av.	13.2	3.6	4.1	6.3	3.1	3.1	8.3	4.5	NA
1971	12.6	4.9	3.6	6.2	2.6	3.4	11.8	3.7	NA
1972	11.4	4.9	2.5	2.8	0.8	3.2	9.3	5.9	9.1
1973	15.5	4.5	4.3	5.0	5.3	3.0	9.8	4.5	13.0
<u>Production</u>									
1966-70 av.	6,389	90	73	539	74	4	5	6	7,180
1971	5,664	112	70	535	67	4	6	6	6,465
1972	5,048	119	53	258	20	5	7	8	5,519
1973	7,385	101	89	424	131	3	12	4	8,152

NA = Not available.

NOTE: Does not include oilseeds produced from fiber crops such as cotton, fiber flax, and hemp.

Sources: Zernovoye Khozyaystvo, No. 11, 1972, p. 14, and Vestnik Statistiki, No. 10, 1974, pp. 87-91.

Table 11--Vegetable oil: Production from oilseeds purchased domestically and imported, USSR, monthly and cumulative, September-August 1969/70-1974/75

Season	September	October	November	December	January	February	March	April	May	June	July	August	1,000 tons					
													1969/70	1970/71	1971/72	1972/73	1973/74	1974/75
1969/70	145	254	265	285	220	198	208	185	173	154	114	53						
Monthly																		
Cumulative		399	664	949	1,169	1,367	1,575	1,760	1,933	2,087	2,201	2,254						
1970/71	168	281	289	297	259	231	237	220	225	207	124	77						
Monthly																		
Cumulative		449	738	1,035	1,294	1,525	1,762	1,982	2,07	2,414	2,538	2,615						
1971/72	170	286	291	298	229	221	233	212	211	205	119	55						
Monthly																		
Cumulative		456	747	1,045	1,274	1,495	1,728	1,940	2,151	2,356	2,475	2,530						
1972/73	206	276	287	306	202	179	209	174	173	161	102	45						
Monthly																		
Cumulative		482	769	1,075	1,277	1,456	1,665	1,839	2,012	2,173	2,275	2,320						
1973/74	192	312	312	330	292	268	304	282	284	252	196	77						
Monthly																		
Cumulative		504	816	1,146	1,438	1,706	2,010	2,292	2,576	2,828	3,024	3,101						
1974/75	185	316	315	330	294	261												
Monthly																		
Cumulative		501	816	1,146	1,440	1,701												
1975/76																		
Monthly																		
Cumulative																		

Table 12--Principal agricultural imports, USSR, 1967-73

Commodities	1967	1968	1969	1970	1971	1972	1973
<u>1,000 tons</u>							
:							
<b>Grain</b>							
Total .....	2,185	1,606	639	2,159	3,476	1/15,500	1/23,900
Wheat .....	1,828	1,340	38	1,847	2,324	8,100	15,200
Corn .....	357	264	498	304	881	4,059	5,380
Rice, milled .....	397	260	326	323	332	280	154
Wheat flour .....	212	263	273	259	279	274	307
:							
<b>Animals for slaughter</b>							
Cattle .....	29	25	29	20	14	10	12
Sheep .....	63	43	37	40	39	45	44
Horses .....	10	13	14	15	16	15	15
Meat and meat products:	58	60	76	165	225	131	128
Shell eggs 2/ .....	41	37	26	33	52	57	44
:							
<b>Fruit</b>							
Fresh .....	539	527	720	679	691	808	828
Dried .....	100	108	104	129	130	96	80
<b>Vegetables</b>							
Fresh .....	151	169	182	163	200	269	162
Canned .....	240	211	214	249	310	346	351
Raw sugar 3/ .....	2,480	1,752	1,332	3,003	1,503	1,970	2,650
:							
Coffee .....	25	31	48	42	43	42	32
Cocoa beans .....	82	109	99	100	138	132	119
Tea .....	23	23	28	29	43	48	37
Tobacco .....	61	62	55	70	72	90	92
Hides and skins 4/ ...:	30	24	27	30	25	24	27
:							
Oilseeds .....	44	56	58	43	45	379	768
Crude rubber .....	278	326	295	316	246	231	274
Wool, scoured .....	50	71	76	83	86	83	96
Cotton, lint .....	144	137	170	258	243	167	131
Vegetable oil, edible :	28	41	24	65	64	60	58
:							

1/ In addition to the wheat and corn, total grain figures included 2.6 million tons of barley in 1972 and 1.9 million tons of barley and 1.3 million of rye in 1973.

2/ Converted at the rate of 18,182 eggs per metric ton or 55 grams per egg.

3/ Includes any refined sugar imports converted to a raw basis.

4/ Millions of hides and skins.

Table 13--Principal agricultural exports, USSR, 1967-73

Commodities	1967	1968	1969	1970	1971	1972	1973
Grain:							
Total .....	6,248	5,406	7,205	5,698	8,640	4,560	4,853
Wheat .....	5,284	4,355	5,979	4,733	7,617	3,890	4,193
Barley .....	452	614	748	503	688	298	276
Corn .....	165	209	247	281	118	249	365
Rye .....	336	222	222	172	208	115	0
Oats .....	11	6	8	9	10	8	19
Flour .....	377	564	593	772	654	378	614
Groats .....	9	8	42	25	40	146	147
Pulses .....	76	138	422	65	150	55	47
Sugar, refined .....	1,032	1,300	1,081	1,079	1,002	50	43
Tobacco .....	2	4	4	4	2	2	1
Meat and meat products:	175	131	98	55	35	60	75
Butter .....	63	76	74	73	24	16	18
Hides and skins 1/ ...:	2	2	3	2	1	1	2/
Wool, scoured .....	20	26	24	18	14	12	8
Oilseed cake and meal :	388	325	319	54	44	52	26
Sunflowerseed .....	304	361	345	143	84	74	73
Vegetable oil, edible:							
Total .....	707	770	696	372	408	423	371
Sunflower .....	670	714	656	351	379	394	342
Tea .....	10	14	13	10	11	12	12
Cotton, lint .....	534	554	452	516	547	652	728
Flax fiber .....	10	8	8	9	9	9	8
Flax tow .....	22	26	18	32	27	26	30
Starch .....	3/	24	21	19	14	8	6

1/ Millions of hides and skins.

2/ Less than 500,000.

3/ Not reported.

Table 14--Agricultural trade: U.S. exports and imports, USSR,  
1967/68-1973/74

Commodities	1967/68	1968/69	1969/70	1970/71	1971/72	1972/73	1973/74	Million dollars								
								1967/68	1968/69							
<b>Exports: 1/</b>																
Wheat	0	2/	0	2/	0	0.7	566.4	219.0								
Coarse grains	0	2/	0	0	0	146.2	234.6	348.1								
of which corn	0	0	0	0	0	106.5	209.5	288.0								
Soybeans	0	0	0	0	0	2/	134.1	7.1								
Cattle hides	5.4	7.8	17.0	8.6	6.5	6.5	8.3									
Fruits, nuts and berries	0	0	0.2	1.1	1.2	2.2	4.5									
All others	0.8	1.6	0.6	2.7	2.4	8.8	7.4									
Total	6.2	9.4	17.8	12.4	157.0	954.4	589.3									
<b>Imports:</b>																
Hides and skins 3/	0	0.2	0.1	2.4	2.7	3.6	3.4									
Mushrooms	0	2/	2/	0.1	0.1	0	0									
Licorice root	0.6	0.4	0	0.1	0	0	0									
Cotton linters	0.9	0.3	2/	0	0	0	0									
Essential oils	0	0.1	0.1	0.1	0.1	2/	0.1									
Spices	0	0	0	2/	0	0	0									
All others	1.4	0.9	0.2	0.3	0.2	1.0	2.5									
Total	2.9	2.0	0.5	3.0	3.1	4.6	6.0									

1/ Includes transshipments through Canada.

2/ Less than \$50,000.

3/ Including furs.

Table 15--Meat: Production by type and by economic holding, live weight and carcass weight, USSR, 1972-74

Economic holding and year	Live weight						Carcass weight					
	Total	and	Beef	Pork	Mutton, lamb, veal	Fowl	Other	Total	and	Beef	Pork	Mutton, lamb, veal
<u>1,000 tons</u>												
<u>Collective and state farms</u>												
1972 .....	12,746		7,119	3,699	1,036	649	243	8,154	4,196	2,814	491	516
1973 .....	12,879		7,400	3,433	1,084	705	257	8,232	4,388	2,625	515	559
1974 2/ .....	NA		7,907	3,752	1,132	811	NA	NA	4,890	2,920	560	665
1975 .....												NA
<u>Other government farms</u>												
1972 .....	1,326		533	686	39	44	24	897	313	518	18	34
1973 .....	1,256		458	691	43	45	19	856	267	524	19	34
1974 2/ .....	NA		3/523	3/698	3/43	3/44	NA	NA	3/310	3/530	3/19	3/35
1975 .....												NA
<u>Private holdings</u>												
1972 .....	6,843		2,054	2,773	858	863	295	4,582	1,213	2,113	414	687
1973 .....	6,652		2,053	2,524	869	886	320	4,439	1,218	1,932	420	702
1974 2/ .....	NA		3/2,070	3/2,700	3/880	3/890	NA	NA	3/1,200	3/2,050	3/421	3/700
1975 .....												NA
<u>Total</u>												
1972 .....	20,915		9,706	7,158	1,933	1,556	562	13,633	5,722	5,445	923	1,237
1973 .....	20,787		9,911	6,648	1,996	1,636	596	13,527	5,873	5,081	954	1,295
1974 2/ .....	3/21,800		3/10,500	3/7,150	3/2,055	3/1,745	3/350	14,500	6,400	5,500	1,000	1,400
1975 .....												

1/ Including pork fat, estimated at 25 percent of carcass weight.  
 2/ Preliminary.  
 3/ Estimate.

NA = Not available.

Table 16--Livestock: Number slaughtered and weight, by type of economic holding, USSR, 1972-73

Economic holding and year		Cattle		Hogs		Sheep and goats	
Number slaughtered	Live weight	Average weight	Number slaughtered	Live weight	Average weight	Number slaughtered	Live weight
Thou.	1,000 tons	Kilograms	Thou.	1,000 tons	Kilograms	Thou.	1,000 tons
<u>Collective and State farms</u>							
1972	24,741	7,119	288	43,238	3,699	86	35,445
1973	24,630	7,400	289	40,737	3,433	84	35,448
1974	...	...	...	...	...	...	1,036
1975	...	...	...	...	...	...	1,084
<u>Total socialized:</u>							
<u>farms 1/</u>	25,781	7,652	297	46,091	4,385	95	36,146
1972	26,326	7,858	298	43,402	4,124	95	36,080
1973	...	...	...	...	...	...	1,075
1974	...	...	...	...	...	...	1,127
1975	...	...	...	...	...	...	30
<u>Private holdings:</u>							
1972	8,757	2,054	235	21,843	2,773	127	23,100
1973	8,612	2,053	238	20,026	2,524	126	22,808
1974	...	...	...	...	...	...	869
1975	...	...	...	...	...	...	38
<u>Total</u>							
1972	34,538	9,706	281	67,934	7,158	105	59,246
1973	34,938	9,911	284	63,428	6,648	105	58,888
1974	...	...	...	...	...	...	1,933
1975	...	...	...	...	...	...	1,996

Table 17--Livestock products: Government purchases of major items,  
USSR, semiannual and annual, 1966-74

Year	Meat (live weight)			Milk			Eggs			
	January- June	July- December	Total	January- June	July- December	Total	January- June	July- December	Total	
	<u>Million tons</u>									<u>Billions</u>
1966	NA	NA	10.27	NA	NA	40.1	NA	NA	11.6	
1967	5.50	6.03	11.53	20.6	21.9	42.5	8.4	4.5	12.9	
1968	5.90	6.03	11.93	21.6	22.4	44.0	8.9	5.2	14.1	
1969	5.66	6.06	11.72	21.2	22.6	43.8	9.3	6.1	15.4	
1970	5.82	6.78	12.60	22.4	23.3	45.7	10.9	7.2	18.1	
1971	6.45	7.71	14.16	23.0	24.1	47.1	12.7	8.9	21.6	
1972	6.92	8.10	15.02	24.4	24.0	48.4	14.1	10.2	24.3	
1973	6.79	7.91	14.70	25.9	27.1	53.0	15.7	11.9	27.6	
1974	7.40	8.80	16.20	28.2	27.6	55.8	17.4	13.5	30.9	
1975	...	...	...	...	...	...	...	...	...	
1976	...	...	...	...	...	...	...	...	...	

Table 18--Livestock: Numbers on collective and state farms, USSR, as of first of month, 1973-75

Livestock and year	January	February	March	April	May	June	July	August	September	October	November	December	Millions		
													1973	1974	
<u>Cattle total</u>															
Cattle	75.5	76.1	77.1	78.6	80.9	81.7	81.3	81.4	80.7	79.0	78.3	78.0	78.0	80.8	
1973	78.3	78.5	79.9	81.2	83.3	84.4	84.0	84.1	83.5	81.8	81.1	81.1	80.8	80.8	
1974	80.9	81.0	82.2												
1975															
1976															
Cows	1/25.0	25.1	25.2	25.4	25.8	26.0	26.0	26.0	26.0	25.9	25.9	25.9	25.9	26.7	26.7
1973	26.2	26.0	26.1	26.3	26.5	26.7	26.8	26.8	26.8	26.7	26.7	26.7	26.7	26.7	26.7
1974	26.9	26.8	26.8												
1975															
1976															
Other cattle	1/50.5	51.0	51.9	53.2	55.5	55.9	55.3	55.4	55.7	53.1	52.4	52.4	52.4	54.1	54.1
1973	52.1	52.5	53.8	54.9	56.8	57.7	57.2	57.3	56.7	55.1	54.4	54.4	54.4	54.1	54.1
1974	54.0	54.2	55.4												
1975															
1976															
Hogs	48.7	47.7	47.6	47.3	49.2	50.7	51.8	51.5	53.7	54.7	54.2	53.4	53.4	54.6	54.6
1973	51.6	51.6	52.0	51.1	52.7	54.1	54.5	54.1	56.7	56.5	56.5	55.9	55.9	54.6	54.6
1974	53.6	53.5	53.2												
1975															
1976															
Sheep and goats	109.7	112.2	116.8	120.0	140.5	143.7	139.6	136.6	131.1	122.8	117.2	114.3	114.3	114.3	114.3
1973	113.4	116.9	122.3	133.8	147.6	150.2	145.8	142.6	136.2	127.3	121.3	121.3	121.3	121.3	121.3
1974	116.8	119.6	125.3												
1975															
1976															
Poultry	1/320.0	326.6	364.1	423.2	478.5	514.0	521.6	496.8	456.5	411.2	378.8	363.8	363.8	403.7	403.7
1973	362.9	368.7	410.1	469.6	521.6	554.5	557.1	534.6	495.8	454.0	420.5	420.5	420.5	403.7	403.7
1974	401.8	444.3													
1975															
1976															

1/ Estimates.

Table 19--Livestock feed: Industrial output of basic types, USSR, 1965-73

Item 1/	1965	1966	1967	1968	1969	1970	1971	1972	1973
<u>1,000 tons</u>									
Mixed feed: total .....	15,500	15,800	18,100	19,200	21,900	23,700	26,700	28,400	31,700
For poultry .....	2,600	3,000	3,600	4,100	4,900	5,900	6,900	7,900	9,100
For livestock 2/ .....	12,900	12,800	14,500	15,100	17,000	17,800	19,800	20,500	22,600
Feed meal: total .....	237	265	325	348	374	393	427	456	506
Fishmeal .....	194	226	285	312	341	361	395	435	486
Others 2/ .....	43	39	40	36	33	32	32	21	20
Dry meat-bone feed:									
total .....	164	197	237	259	246	267	327	362	368
Meat-bone meal .....	145	177	217	237	224	245	305	345	351
Bone feed meal .....	13.2	14.8	14.0	16.0	15.8	14.4	11.9	8.1	10.3
Blood meal .....	3.5	4.5	5.0	4.8	4.5	4.9	6.8	5.7	4.8
Others 2/ .....	2.3	0.7	1.0	1.2	1.7	2.7	3.3	3.2	1.9
Bone meal for mineral supplement in livestock and poultry feed .....	35.0	38.0	46.3	54.7	62.3	69.4	22.5	20.4	17.2
Oilcake and meal .....	3,411	3,499	3,799	3,804	3,507	3,431	3,756	3,881	4,012

1/ In most cases, the items listed in this stub simply represent translations of the Russian terms.
2/ Accurate definitions of some of the sub-items could not be determined.
2/ Calculated residuals.

Source: *Vestnik Statistiki*, No. 10, 1974, p. 94.

Table 20--Selected food products: Per capita consumption, USSR, average 1966-70, annual 1950, 1960, and 1966-74, plan 1975

Year	Meat and fat	Fish and fish products	Milk and products	Eggs	Sugar oil	Vegetable oil	Potatoes	Grain 2/	Vegetables: Fruits and melons berries	
1950	26	7.0	172	60	11.6	2.7	241	172	51	11
1960	40	9.9	240	118	28.0	5.3	143	164	70	22
1966	44	12.9	260	132	35.3	6.3	135	153	73	NA
1967	46	13.2	274	138	36.7	6.5	131	150	80	NA
1968	48	14.3	290	144	37.5	6.4	134	148	80	NA
1969	47	15.3	304	148	37.8	6.6	131	149	76	NA
1970	48	15.4	307	159	38.8	6.8	130	149	82	35
1966-70 av.	47	14.3	286	144	37.2	6.5	132	150	78	NA
1971	50	14.8	300	174	39.5	7.0	128	147	85	39
1972	52	15.1	296	185	38.8	7.0	121	145	80	36
1973	53	16.1	307	195	40.8	7.3	124	143	85	40
1974 3/	55	16.5	312	205	39.0	7.5	120	142	85	38
1975										
1971-75 av.										
1975 plan.	56	22	320	207	43	8.3	120	149	109	46

NA = not available.

1/ Including milk equivalent of butter.

2/ Flour equivalent.

3/ Estimates.

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